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Test report No:

6018731.50

TEST REPORT

Electromagnetic Compatibility (EMC)

Identification of item tested	Sander
Trademark	AGP
Model and /or type reference	DP100; SMDKIT; SM100; WS760; SMWKIT; RSM 760; RAIL-MATE; WS620; RSM 620
Ratings	WS620; RSM 620: 110-120 Vac; 50-60 Hz; 1300 W; Class II 220-240 Vac; 50-60 Hz; 1500 W; Class II DP100; SMDKIT; SM100; WS760; SMWKIT; RSM 760; RAIL- MATE: 110-120 Vac; 50-60 Hz; 850 W; Class II 220-240 Vac; 50-60 Hz; 1200 W; Class II
Test Laboratory / address	DEKRA Testing and Certification (Shanghai) Ltd. 3F #250 Jiangchangsan Road Building 16 Headquarter Economy Park Shibe Hi-Tech Park, Zhabei District Shanghai 200436 China
Applicant / address	LEE YEONG INDUSTRIAL CO., LTD. No.2, Kejia Rd., Douliu City, Yunlin County 64057, Taiwan
Test method requested, standard	EN 55014-1:2017; EN 55014-2:2015; EN 61000-3-2:2014; EN 61000-3-3:2013
Verdict Summary	IN COMPLIANCE
Tested by	Kaiyuan Dai (Project Engineer) 
Approved by	Zuyao Fan (Project Manager) 
Date of issue	2019-05-06

Report template No

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COMPETENCES AND GUARANTEES

DEKRA is a testing laboratory competent to carry out the tests described in this report.

In order to assure the traceability to other national and international laboratories, DEKRA has a calibration and maintenance program for its measurement equipment.

DEKRA guarantees the reliability of the data presented in this report, which is the result of the measurements and the tests performed to the item under test on the date and under the conditions stated in the report and it is based on the knowledge and technical facilities available at DEKRA at the time of performance of the test.

DEKRA is liable to the client for the maintenance of the confidentiality of all information related to the item under test and the results of the test.

The results presented in this Test Report apply only to the particular item under test established in this document.

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GENERAL CONDITIONS

1. This report is only referred to the item that has undergone the test.
2. This report does not constitute or imply on its own an approval of the product by the Certification Bodies or Competent Authorities.
3. This document is only valid if complete; no partial reproduction can be made without previous written permission of DEKRA.
4. This test report cannot be used partially or in full for publicity and/or promotional purposes without previous written permission of DEKRA.
5. The information provided by the customer in this report may affect the validity of the results, the test lab is not responsible for it.
6. The test results presented in this report relate only to the object tested.

UNCERTAINTY

For all measurements where guidance for the calculation of the instrumentation uncertainty of a measurement is specified in EN 55016-4-2 (CISPR 16-4-2), EN/IEC 61000-4 series or a product standard, the measurement instrumentation uncertainty has been calculated and applied in accordance with these standards.

Uncertainties have been calculated according to the DEKRA internal document. The reported expanded uncertainties are based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95%.

ENVIRONMENTAL CONDITIONS

The climatic conditions during the tests are within the limits specified by the manufacturer for the operation of the EUT and the test equipment. The climatic conditions during the tests were within the following limits:

Ambient temperature	15 °C – 35 °C
Relative Humidity air	30% - 60%
Atmospheric pressure	86 kPa – 106 kPa

If explicitly required in the basic standard or applied product / product family standard the climatic values are recorded and documented separately in this test report.

POSSIBLE TEST CASE VERDICTS

Test case does not apply to test object	N/A
Test object does meet requirement	P (Pass) / PASS
Test object does not meet requirement	F (Fail) / FAIL
Not measured	N/M

DEFINITION OF SYMBOLS USED IN THIS TEST REPORT

<input checked="" type="checkbox"/> Indicates that the listed condition, standard or equipment is applicable for this report/test/EUT.			
<input type="checkbox"/> Indicates that the listed condition, standard or equipment is not applicable for this report/test/EUT.			
Decimal separator used in this report	<input checked="" type="checkbox"/>	Comma (,)	<input type="checkbox"/> Point (.)

ABBREVIATIONS

For the purposes of the present document, the following abbreviations apply:

- EUT : Equipment Under Test
- QP : Quasi-Peak
- CAV : CISPR Average
- AV : Average
- CDN : Coupling Decoupling Network
- SAC : Semi-Anechoic Chamber
- OATS : Open Area Test Site
- BW : Bandwidth
- AM : Amplitude Modulation
- PM : Pulse Modulation
- HCP : Horizontal Coupling Plane
- VCP : Vertical Coupling Plane
- U_N : Nominal voltage

DOCUMENT HISTORY

Report nr.	Date	Description
6018731.50	2019-05-06	First release

REMARKS AND COMMENTS

The equipment under test (EUT) does meet the requirements of the stated standard(s)/test(s).

The test results relate only to the samples tested.

According to the declaration from manufacturer,

WS760 and WS620 are Belt sanders. DP100 is a drum type sander.

WS760 and DP100 shares same construction and components except the working head.

WS620 is different with WS760 and DP100.

All models were designed for two rated voltage range 110-120 Vac and 220-240 Vac with different motor.

DP100; SMDKIT; SM100 are same, only the models' name are different.

WS760; SMWKIT; RAIL-MATE; RSM 760 are same, only the models' name are different.

WS620; RSM 620 are same, only the models' name are different.

Therefore, model WS620 and DP100 were selected for the full test and the result is also representative for all models as well.

1 GENERAL INFORMATION

1.1 General Description of the Item(s)

Description of the item	Sander
Model / Type number	WS620 and DP100
Representative Types	SMDKIT; SM100; WS760; SMWKIT; RSM 760; RAIL-MATE; RSM 620
Trademark	AGP
Manufacturer.....	LEE YEONG INDUSTRIAL CO., LTD. No.2, Kejia Rd., Douliu City, Yunlin County 64057, Taiwan
Factory	LEE YEONG INDUSTRIAL CO., LTD. No.2, Kejia Rd., Douliu City, Yunlin County 64057, Taiwan

Rated Power	WS620; RSM 620: 110-120 Vac; 50-60 Hz; 1300 W; Class II 220-240 Vac; 50-60 Hz; 1500 W; Class II DP100; SMDKIT; SM100; WS760; SMWKIT; RSM 760; RAIL-MATE: 110-120 Vac; 50-60 Hz; 850 W; Class II 220-240 Vac; 50-60 Hz; 1200 W; Class II
Clock frequencies	Not provided
Other parameters.....	N/A
Mounting position.....	<input type="checkbox"/> Table top equipment <input type="checkbox"/> Wall/Ceiling mounted equipment <input type="checkbox"/> Floor standing equipment <input checked="" type="checkbox"/> Hand-held equipment <input type="checkbox"/> Other:

Intended use of the Equipment Under Test (EUT)
N/A

No	Module/parts of test item	Type	Manufacturer
	N/A		

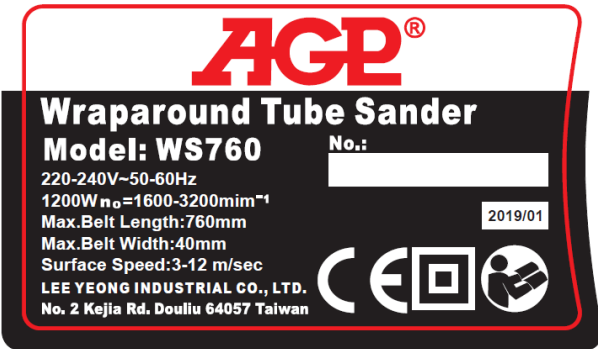
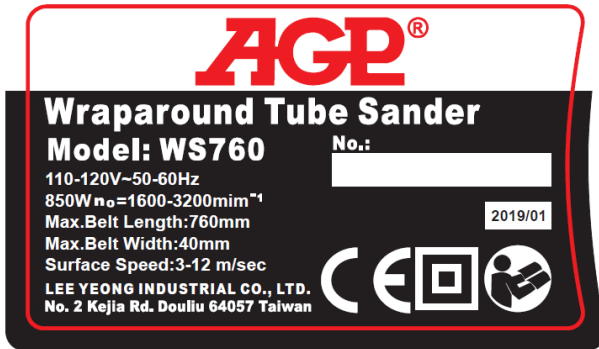
No	Documents as provided by the applicant – Description	File name	Issue date
	N/A		

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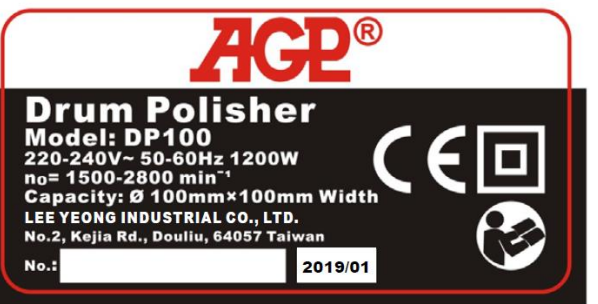
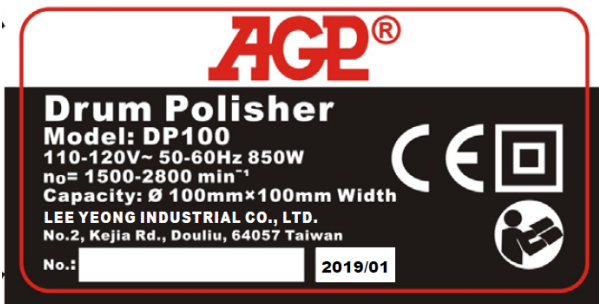
WS620; RSM 620:



WS760; SMWKIT; RSM 760; RAIL-MATE:



DP100; SMDKIT; SM100:



1.2 Environment

The requirements and standards apply to equipment intended for use in:

<input checked="" type="checkbox"/>	Residential (domestic) environment.
<input checked="" type="checkbox"/>	Commercial and light-industrial environment.
<input type="checkbox"/>	Industrial environment.

1.3 Test Location

Location	DEKRA Testing and Certification Co.,Ltd.
Address	No.372-2, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County 31061, Taiwan, R.O.C
Date	January 2019
Supervised by	Kaiyuan Dai

1.4 Classification according to EN 55014-2

The standard EN 55014-2 is subdivided in four categories. For each category, specific immunity requirements are formulated.

<input checked="" type="checkbox"/>	<p>Category I: Apparatus containing no electronic control circuitry.</p> <p><u>Examples:</u> Motor operated appliances, lighting toys, track sets without electronic control units, tools, heating appliances, UV and IR radiators and apparatus containing components such as electromechanical switches and thermostats.</p> <p>Electric circuits consisting of passive components (such as radio interference suppression capacitors or inductors, mains transformers and mains frequency rectifiers) are not considered to be electronic control circuitry.</p>
<input type="checkbox"/>	<p>Category II: Transformer toys, dual supply toys, mains powered motor operated appliances, tools, heating appliances and similar electric apparatus (for example – UV radiators, IR radiators and microwave ovens) containing electronic control circuitry with no internal clock frequency or oscillator frequency higher than 15 MHz.</p>
<input type="checkbox"/>	<p>Category III: Battery powered apparatus (with built-in batteries or external batteries), which in normal use is not connected to the mains, containing an electronic control circuitry with no internal clock frequency or oscillator frequency higher than 15 MHz.</p>
<input type="checkbox"/>	<p>Category IV: All other apparatus covered by the scope of the EN 55014-2 standard.</p>
<p>Clock frequency: Fundamental frequency of any signal used in the device, excluding those which are solely used inside integrated circuits (IC).</p>	

2 DESCRIPTION OF TEST SETUP

2.1 Operating mode(s) used for tests

During the tests the following operating mode(s) has(have) been used.

Operating mode	Operating mode description	Used for testing	
		Emission	Immunity
1	Normal operation	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2		<input type="checkbox"/>	<input type="checkbox"/>
3		<input type="checkbox"/>	<input type="checkbox"/>
4		<input type="checkbox"/>	<input type="checkbox"/>
5		<input type="checkbox"/>	<input type="checkbox"/>
6		<input type="checkbox"/>	<input type="checkbox"/>
<u>Supplemental information:</u>			

2.2 Port(s) of the EUT

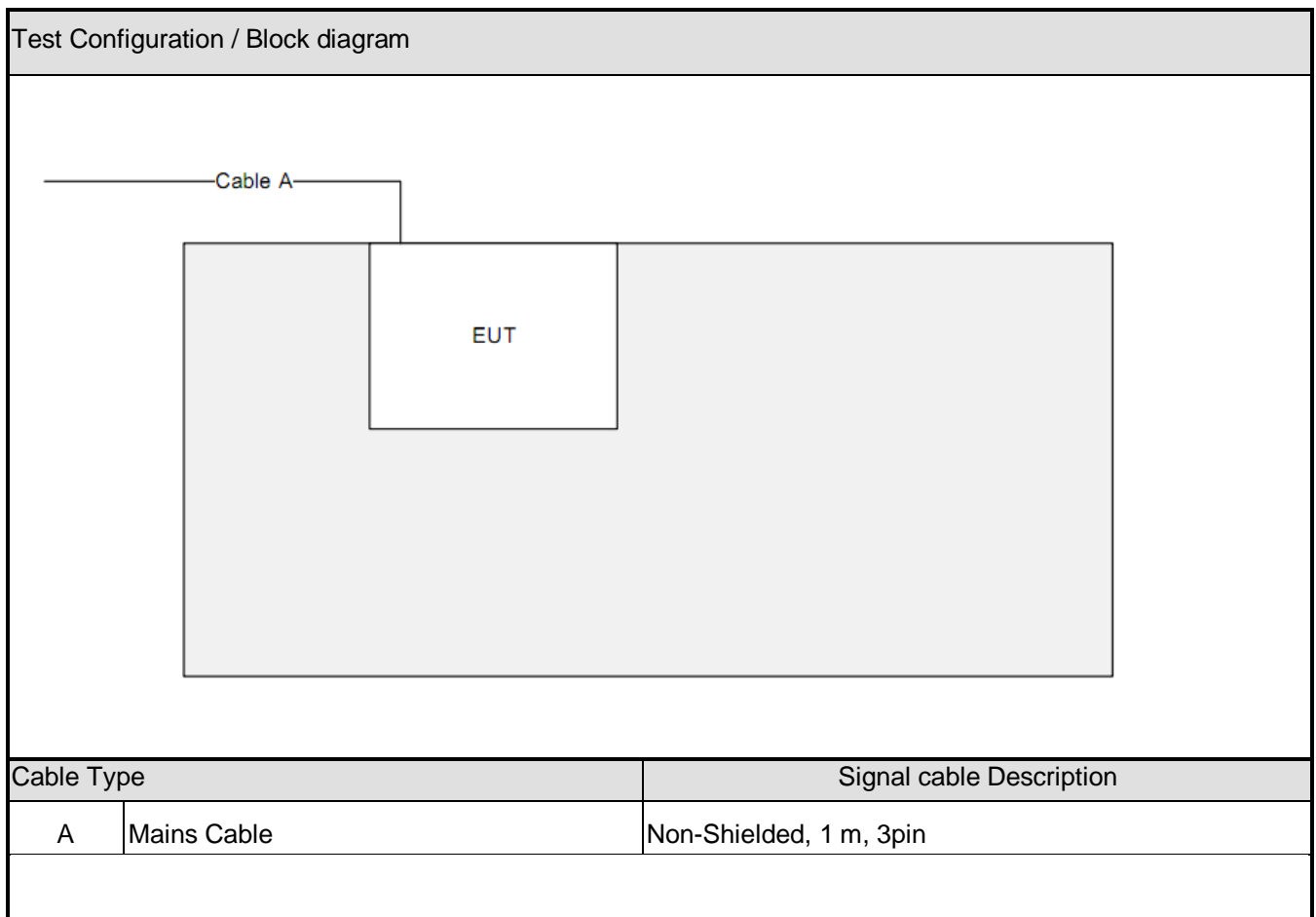
Port name and description	Connected to / Termination	Cable		
		Length used during test [m]	Attached during test	Shielded
N/A			<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>
<u>Supplemental information:</u>				

2.3 Support / Auxiliary equipment / unit / software for the EUT

The EUT has been tested with the following auxiliary equipment / unit / software:

Auxiliary equipment / unit / software	Type / Version	Manufacturer	Supplied by
N/A			
<u>Supplemental information:</u>			

2.4 Test Configuration / Block diagram used for tests



3 VERDICT SUMMARY SECTION

This chapter presents an overview of standards and results. Refer to the next chapters for details of measured test results and applied test levels.

3.1 Standards

Standard	Year	Description
EN 55014-1	2017 ¹⁾	Requirements for household appliances, electric tools and similar apparatus – Part 1: Emission.
EN 55016-2-1	2014	Methods of measurement of disturbances and immunity – Conducted disturbance measurements.
EN 55016-2-2	2010	Methods of measurement of disturbances and immunity – Measurement of disturbance power.
EN 55016-2-3 +A1 +A2	2010 2010 2014	Methods of measurement of disturbances and immunity – Radiated disturbance measurements.
EN 61000-3-2	2014	Limits for harmonic current emissions (equipment input current ≤ 16 A per phase).
EN 61000-3-3	2013	Limitation of voltage fluctuations and flicker
EN 55014-2	2015 ¹⁾	Requirements for household appliances, electric tools and similar apparatus – Part 2: Immunity – Product family standard.
EN 61000-4-2	2009	Electrostatic discharge immunity test.
EN 61000-4-3 +A1 +A2	2006 2008 2010	Radiated, radio-frequency, electromagnetic field immunity test.
EN 61000-4-4	2012	Electrical fast transient/burst immunity test.
EN 61000-4-5	2014	Surge immunity test.
EN 61000-4-6	2014	Immunity to conducted disturbances, induced by radio-frequency fields.
EN 61000-4-11	2004	Voltage dips, short interruptions and voltage variations immunity tests.

50) Not harmonized yet.

3.2 Deviation(s) from the Standard(s) / Test Specification(s)

No deviation.

3.3 Overview of results

EMISSION TESTS – EN 55014-1			
Requirement – Test case	Basic standard(s)	Verdict	Remark
Conducted disturbance voltage at mains terminals (150 KHz – 30 MHz)	EN 55016-2-1	PASS	---
Conducted disturbance voltage at load terminals (150 KHz – 30 MHz)	EN 55016-2-1	N/A	---
Conducted disturbance voltage at additional terminals (150 KHz – 30 MHz)	EN 55016-2-1	N/A	---
Disturbance power (30 MHz to 300 MHz)	EN 55016-2-2	PASS	See 2)
Radiated electromagnetic disturbances (30 – 1000 MHz)	EN 55016-2-3	N/A	---
Discontinuous disturbance (clicks) on AC power leads	EN 55014-1	N/A	See 1)
<u>Supplementary information:</u>			
1) Exemptions from click measurements applicable (clause 4.2.3).			
2) According to clause 4.1.2.3.2 procedure (a) of the EN 55014-1 standard the EUT is deemed to comply in the frequency range from 300 MHz to 1000 MHz without further measurements.			

EMISSION TESTS – EN 61000-3-2, EN 61000-3-3			
Requirement – Test case	Basic standard(s)	Verdict	Remark
Harmonic current emissions	EN 61000-3-2	PASS	---
Voltage changes, voltage fluctuations and flicker	EN 61000-3-3	PASS	---
<u>Supplementary information:</u>			

IMMUNITY TESTS – EN 55014-2			
Requirement – Test case	Basic standard(s)	Verdict	Remark
Electrostatic discharge	EN 61000-4-2	N/A	See 1)
Radio-frequency electromagnetic fields	EN 61000-4-3	N/A	See 1)
Fast transients	EN 61000-4-4	N/A	See 1)
Surge transient	EN 61000-4-5	N/A	See 1)
Injected currents (radio-frequency common mode)	EN 61000-4-6	N/A	See 1)
Voltage dips and short interruptions	EN 61000-4-11	N/A	See 1)
<u>Supplementary information:</u>			
1) The equipment is classified as category 1 equipment according to EN 55014-2; no immunity tests are applicable.			

4 EMISSION TEST RESULTS

4.1	Conducted disturbance voltage – Mains	VERDICT: PASS
------------	--	----------------------

Standard	EN 55014-1
Basic standard	EN 55016-2-1

Limits – Tools

Frequency range [MHz]	Limit: QP [dB(μV) ¹⁾	Limit: AV [dB(μV) ¹⁾	IF BW	Detector(s)
0,15 - 0,35	66 – 56 ²⁾	59 - 46 ²⁾	9 KHz	QP, CAV
0,35 - 5,0	56	46	9 KHz	QP, CAV
5,0 - 30	60	50	9 KHz	QP, CAV

¹⁾ At the transition frequency, the lower limit applies.

²⁾ The limit decreases linearly with the logarithm of the frequency.

<input type="checkbox"/>	Rated power below 700 W	Limits as above
<input type="checkbox"/>	Rated power between 700 and 1000 W	Limits +4 dB
<input checked="" type="checkbox"/>	Rated power above 1000 W	Limits +10 dB

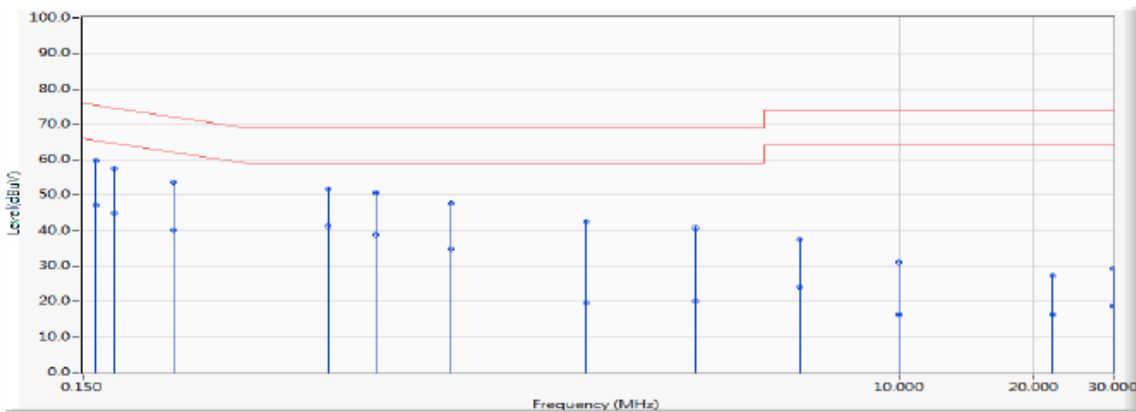
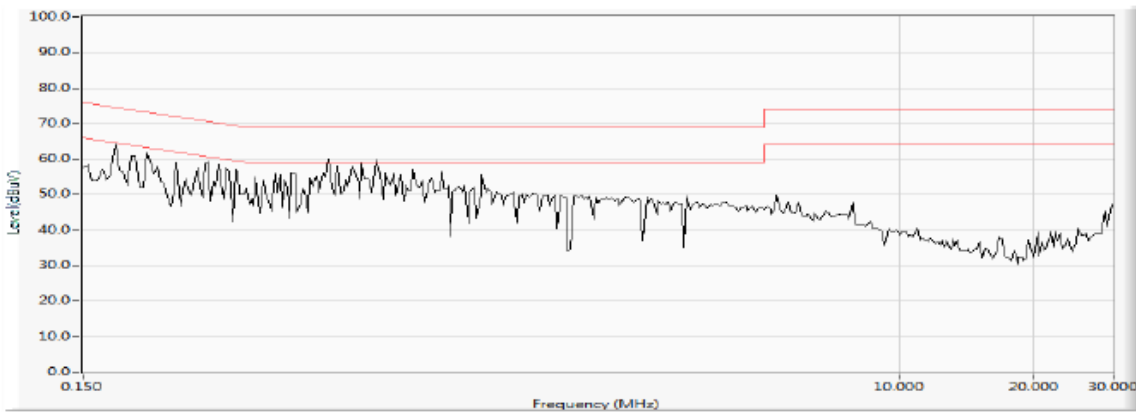
Performed measurements

Scan range (0,9 – 1,1 U _N)	<input type="checkbox"/>	198 – 264 V _{AC}	<input type="checkbox"/>	207 – 253 V _{AC}	<input checked="" type="checkbox"/>	230 V _{AC}				
Tested terminal(s) / port	<input checked="" type="checkbox"/>	AC mains input power	<input checked="" type="checkbox"/>	N	<input checked="" type="checkbox"/>	L1	<input type="checkbox"/>	L2	<input type="checkbox"/>	L3
	<input type="checkbox"/>	DC mains input power	<input type="checkbox"/>	Positive (+)	<input type="checkbox"/>	Negative (-)				
Voltage – Mains [V]	230 Vac									
Frequency – Mains [Hz]	50 Hz									
Test method applied	<input checked="" type="checkbox"/>	Artificial mains network								
	<input type="checkbox"/>	Voltage probe								
Test setup	<input type="checkbox"/>	Table top	<input checked="" type="checkbox"/>	Artificial hand applied						
	<input type="checkbox"/>	Floor standing	<input type="checkbox"/>	Other:						
	Refer to the Annex 3 for test setup photo(s).									
Operating mode(s) used	Mode 1									
Remark	---									

Measurement data	Port under test	AC mains power input
Operating mode / voltage / frequency used during the test		Mode 1/ 230 Vac/ 50 Hz
WS620		

Results for 220-240v model

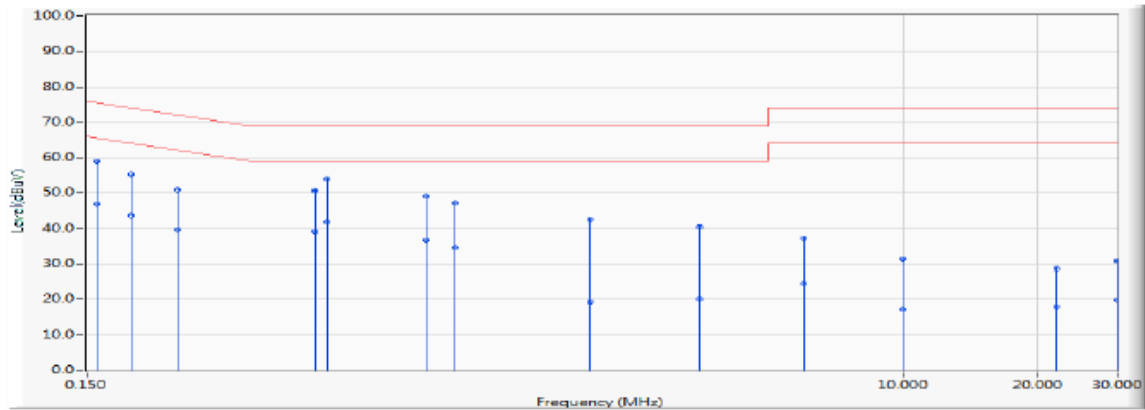
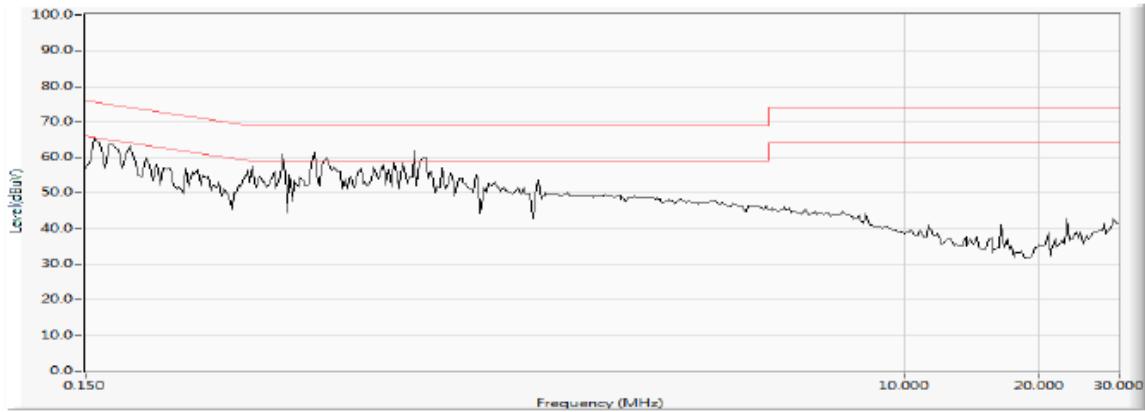
Line



Measurement data			Port under test		AC mains power input			
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	*	0.160	9.680	49.990	59.670	-15.797	75.467	QUASPEAK
2		0.160	9.680	37.560	47.240	-20.998	68.238	AVERAGE
3		0.177	9.680	47.970	57.650	-16.983	74.633	QUASPEAK
4		0.177	9.680	35.270	44.950	-22.097	67.047	AVERAGE
5		0.240	9.680	43.850	53.530	-18.587	72.117	QUASPEAK
6		0.240	9.680	30.500	40.180	-23.273	63.453	AVERAGE
7		0.529	9.688	42.050	51.738	-17.262	69.000	QUASPEAK
8		0.529	9.688	31.610	41.298	-17.702	59.000	AVERAGE
9		0.677	9.720	40.860	50.580	-18.420	69.000	QUASPEAK
10		0.677	9.720	29.070	38.790	-20.210	59.000	AVERAGE
11		1.000	9.790	38.060	47.850	-21.150	69.000	QUASPEAK
12		1.000	9.790	24.930	34.720	-24.280	59.000	AVERAGE
13		2.000	9.800	32.900	42.700	-26.300	69.000	QUASPEAK
14		2.000	9.800	9.810	19.610	-39.390	59.000	AVERAGE
15		3.500	9.807	30.820	40.627	-28.373	69.000	QUASPEAK
16		3.500	9.807	10.210	20.017	-38.983	59.000	AVERAGE
17		6.000	9.877	27.670	37.547	-36.453	74.000	QUASPEAK
18		6.000	9.877	14.330	24.207	-39.793	64.000	AVERAGE
19		10.000	10.090	21.130	31.220	-42.780	74.000	QUASPEAK
20		10.000	10.090	6.130	16.220	-47.780	64.000	AVERAGE
21		22.000	10.424	17.040	27.464	-46.536	74.000	QUASPEAK
22		22.000	10.424	5.920	16.344	-47.656	64.000	AVERAGE
23		30.000	10.580	18.700	29.280	-44.720	74.000	QUASPEAK
24		30.000	10.580	8.060	18.640	-45.360	64.000	AVERAGE
Remark								

Measurement data	Port under test	AC mains power input
Operating mode / voltage / frequency used during the test		Mode 1/ 230 Vac/ 50 Hz
WS620		

Neutral



Measurement data				Port under test		AC mains power input		
	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type	
1	0.158	9.680	49.290	58.970	-16.600	75.571	QUASIPeAK	
2	0.158	9.680	37.180	46.860	-21.526	68.387	AVERAGE	
3	0.189	9.680	45.580	55.260	-18.831	74.091	QUASIPeAK	
4	0.189	9.680	34.110	43.790	-22.482	66.272	AVERAGE	
5	0.240	9.680	41.150	50.830	-21.287	72.117	QUASIPeAK	
6	0.240	9.680	29.870	39.550	-23.903	63.453	AVERAGE	
7	0.486	9.681	41.010	50.691	-18.309	69.000	QUASIPeAK	
8	0.486	9.681	29.430	39.111	-19.889	59.000	AVERAGE	
9	* 0.517	9.685	44.300	53.985	-15.015	69.000	QUASIPeAK	
10	0.517	9.685	32.250	41.935	-17.065	59.000	AVERAGE	
11	0.857	9.759	39.410	49.169	-19.831	69.000	QUASIPeAK	
12	0.857	9.759	26.850	36.609	-22.391	59.000	AVERAGE	
13	1.000	9.790	37.430	47.220	-21.780	69.000	QUASIPeAK	
14	1.000	9.790	24.680	34.470	-24.530	59.000	AVERAGE	
15	2.000	9.800	32.800	42.600	-26.400	69.000	QUASIPeAK	
16	2.000	9.800	9.520	19.320	-39.680	59.000	AVERAGE	
17	3.500	9.815	30.620	40.435	-28.565	69.000	QUASIPeAK	
18	3.500	9.815	10.370	20.185	-38.815	59.000	AVERAGE	
19	6.000	9.880	27.410	37.290	-36.710	74.000	QUASIPeAK	
20	6.000	9.880	14.530	24.410	-39.590	64.000	AVERAGE	
21	10.000	10.080	21.370	31.450	-42.550	74.000	QUASIPeAK	
22	10.000	10.080	7.040	17.120	-46.880	64.000	AVERAGE	
23	22.000	10.358	18.350	28.708	-45.292	74.000	QUASIPeAK	
24	22.000	10.358	7.640	17.998	-46.002	64.000	AVERAGE	
25	30.000	10.450	20.470	30.920	-43.080	74.000	QUASIPeAK	
26	30.000	10.450	9.390	19.840	-44.160	64.000	AVERAGE	
Remark								

Limits – Tools

Frequency range [MHz]	Limit: QP [dB(μV) ¹⁾	Limit: AV [dB(μV) ¹⁾	IF BW	Detector(s)
0,15 - 0,35	66 – 56 ²⁾	59 - 46 ²⁾	9 KHz	QP, CAV
0,35 - 5,0	56	46	9 KHz	QP, CAV
5,0 - 30	60	50	9 KHz	QP, CAV
¹⁾ At the transition frequency, the lower limit applies. ²⁾ The limit decreases linearly with the logarithm of the frequency.				
<input type="checkbox"/>	Rated power below 700 W	Limits as above		
<input type="checkbox"/>	Rated power between 700 and 1000 W	Limits +4 dB		
<input checked="" type="checkbox"/>	Rated power above 1000 W	Limits +10 dB		

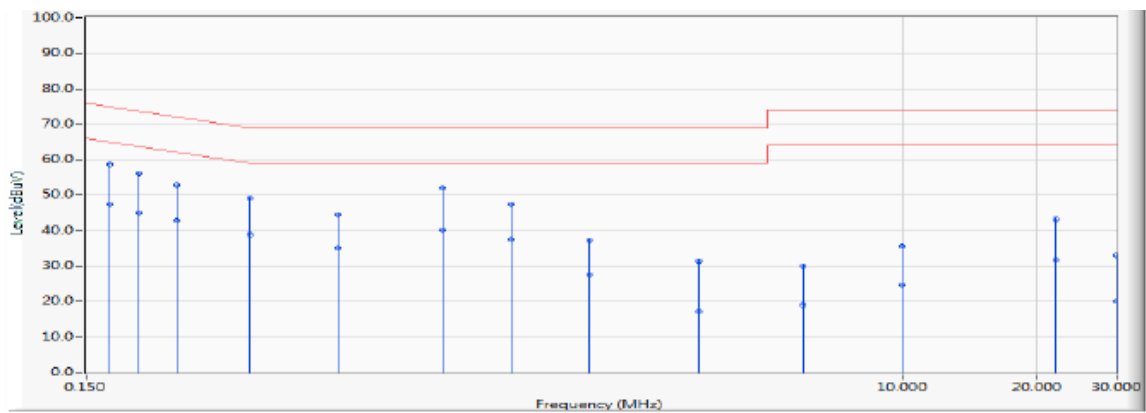
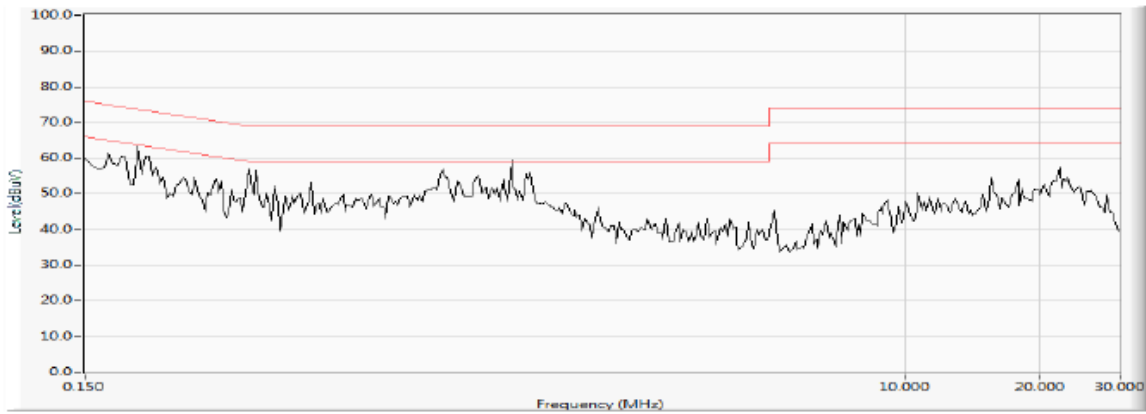
Performed measurements

Scan range (0,9 – 1,1 U _N)	<input type="checkbox"/>	198 – 264 V _{AC}	<input type="checkbox"/>	207 – 253 V _{AC}	<input checked="" type="checkbox"/>	110 V _{AC}				
Tested terminal(s) / port	<input checked="" type="checkbox"/>	AC mains input power	<input checked="" type="checkbox"/>	N	<input checked="" type="checkbox"/>	L1	<input type="checkbox"/>	L2	<input type="checkbox"/>	L3
	<input type="checkbox"/>	DC mains input power	<input type="checkbox"/>	Positive (+)	<input type="checkbox"/>	Negative (-)				
Voltage – Mains [V]	110 Vac									
Frequency – Mains [Hz]	60 Hz									
Test method applied	<input checked="" type="checkbox"/>	Artificial mains network								
	<input type="checkbox"/>	Voltage probe								
Test setup	<input type="checkbox"/>	Table top	<input checked="" type="checkbox"/>	Artificial hand applied						
	<input type="checkbox"/>	Floor standing	<input type="checkbox"/>	Other:						
	Refer to the Annex 3 for test setup photo(s).									
Operating mode(s) used	Mode 1									
Remark	---									

Measurement data	Port under test	AC mains power input
Operating mode / voltage / frequency used during the test		Mode 1/ 110 Vac/ 60 Hz
WS620		

Results for 110-120v model

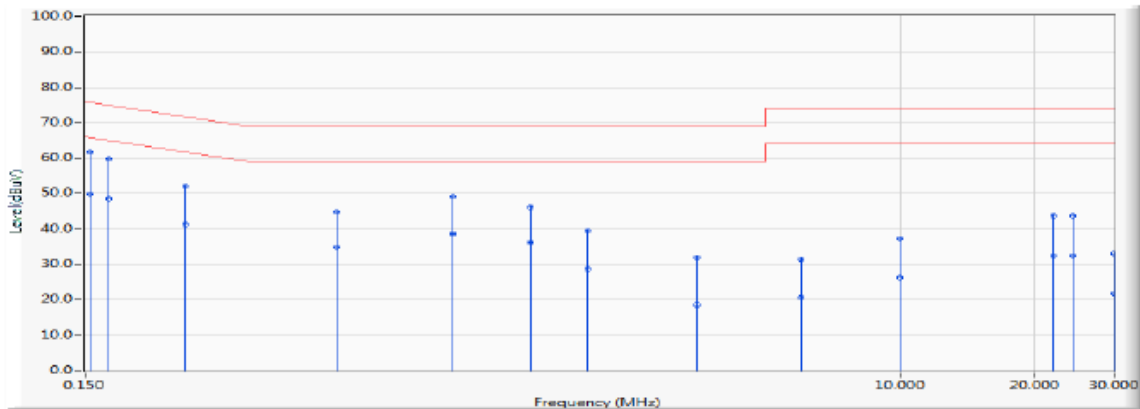
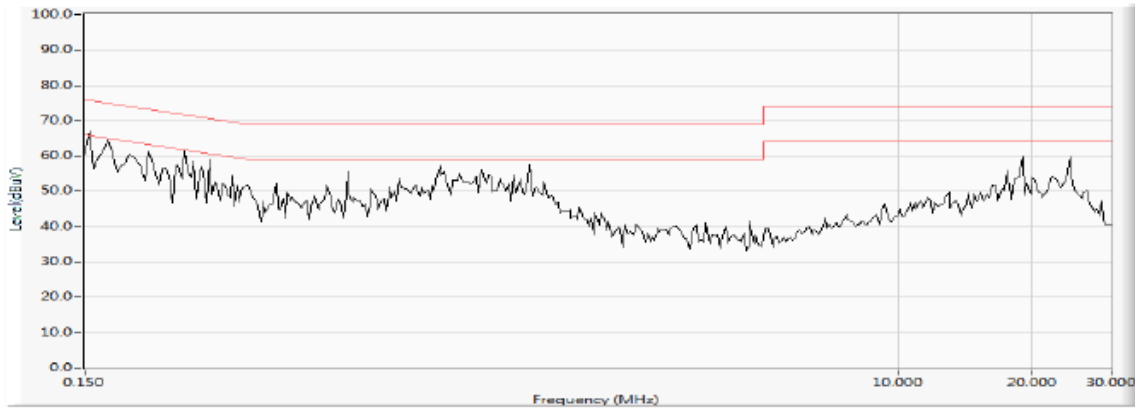
Line



Measurement data				Port under test		AC mains power input		
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	*	0.170	9.680	49.090	58.770	-16.196	74.966	QUASIPeAK
2		0.170	9.680	37.860	47.540	-19.983	67.523	AVERAGE
3		0.197	9.680	46.420	56.100	-17.648	73.748	QUASIPeAK
4		0.197	9.680	35.400	45.080	-20.703	65.783	AVERAGE
5		0.240	9.680	43.240	52.920	-19.197	72.117	QUASIPeAK
6		0.240	9.680	33.150	42.830	-20.623	63.453	AVERAGE
7		0.349	9.680	39.370	49.050	-19.974	69.024	QUASIPeAK
8		0.349	9.680	29.150	38.830	-20.204	59.034	AVERAGE
9		0.550	9.693	34.750	44.442	-24.558	69.000	QUASIPeAK
10		0.550	9.693	25.320	35.012	-23.988	59.000	AVERAGE
11		0.939	9.777	42.350	52.127	-16.873	69.000	QUASIPeAK
12		0.939	9.777	30.490	40.267	-18.733	59.000	AVERAGE
13		1.334	9.793	37.600	47.393	-21.607	69.000	QUASIPeAK
14		1.334	9.793	27.830	37.623	-21.377	59.000	AVERAGE
15		2.000	9.800	27.580	37.380	-31.620	69.000	QUASIPeAK
16		2.000	9.800	17.680	27.480	-31.520	59.000	AVERAGE
17		3.500	9.807	21.640	31.447	-37.553	69.000	QUASIPeAK
18		3.500	9.807	7.420	17.227	-41.773	59.000	AVERAGE
19		6.000	9.877	20.060	29.937	-44.063	74.000	QUASIPeAK
20		6.000	9.877	9.070	18.947	-45.053	64.000	AVERAGE
21		10.000	10.090	25.530	35.620	-38.380	74.000	QUASIPeAK
22		10.000	10.090	14.490	24.580	-39.420	64.000	AVERAGE
23		22.000	10.424	32.810	43.234	-30.766	74.000	QUASIPeAK
24		22.000	10.424	21.090	31.514	-32.486	64.000	AVERAGE
25		30.000	10.580	22.280	32.860	-41.140	74.000	QUASIPeAK
26		30.000	10.580	9.620	20.200	-43.800	64.000	AVERAGE
Remark								

Measurement data	Port under test	AC mains power input
Operating mode / voltage / frequency used during the test		Mode 1/ 110 Vac/ 60 Hz
WS620		

Neutral



Measurement data				Port under test		AC mains power input		
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	*	0.154	9.681	51.870	61.551	-14.232	75.783	QUASIPeAK
2		0.154	9.681	40.160	49.841	-18.849	68.689	AVERAGE
3		0.170	9.680	50.220	59.900	-15.066	74.966	QUASIPeAK
4		0.170	9.680	38.820	48.500	-19.023	67.523	AVERAGE
5		0.252	9.680	42.230	51.910	-19.804	71.714	QUASIPeAK
6		0.252	9.680	31.710	41.390	-21.487	62.877	AVERAGE
7		0.550	9.693	35.000	44.692	-24.308	69.000	QUASIPeAK
8		0.550	9.693	25.210	34.902	-24.098	59.000	AVERAGE
9		1.000	9.790	39.330	49.120	-19.880	69.000	QUASIPeAK
10		1.000	9.790	28.890	38.680	-20.320	59.000	AVERAGE
11		1.490	9.795	36.400	46.195	-22.805	69.000	QUASIPeAK
12		1.490	9.795	26.330	36.125	-22.875	59.000	AVERAGE
13		2.000	9.800	29.540	39.340	-29.660	69.000	QUASIPeAK
14		2.000	9.800	18.870	28.670	-30.330	59.000	AVERAGE
15		3.500	9.815	22.180	31.995	-37.005	69.000	QUASIPeAK
16		3.500	9.815	8.780	18.595	-40.405	59.000	AVERAGE
17		6.000	9.880	21.510	31.390	-42.610	74.000	QUASIPeAK
18		6.000	9.880	10.850	20.730	-43.270	64.000	AVERAGE
19		10.000	10.080	27.080	37.160	-36.840	74.000	QUASIPeAK
20		10.000	10.080	16.320	26.400	-37.600	64.000	AVERAGE
21		22.000	10.358	33.440	43.798	-30.202	74.000	QUASIPeAK
22		22.000	10.358	21.960	32.318	-31.682	64.000	AVERAGE
23		24.240	10.356	33.420	43.776	-30.224	74.000	QUASIPeAK
24		24.240	10.356	22.210	32.566	-31.434	64.000	AVERAGE
25		30.000	10.450	22.470	32.920	-41.080	74.000	QUASIPeAK
26		30.000	10.450	11.320	21.770	-42.230	64.000	AVERAGE
Remark								

Limits – Tools

Frequency range [MHz]	Limit: QP [dB(μ V) ¹⁾	Limit: AV [dB(μ V) ¹⁾	IF BW	Detector(s)
0,15 - 0,35	66 – 56 ²⁾	59 - 46 ²⁾	9 KHz	QP, CAV
0,35 - 5,0	56	46	9 KHz	QP, CAV
5,0 - 30	60	50	9 KHz	QP, CAV
¹⁾ At the transition frequency, the lower limit applies. ²⁾ The limit decreases linearly with the logarithm of the frequency.				
<input type="checkbox"/>	Rated power below 700 W	Limits as above		
<input type="checkbox"/>	Rated power between 700 and 1000 W	Limits +4 dB		
<input checked="" type="checkbox"/>	Rated power above 1000 W	Limits +10 dB		

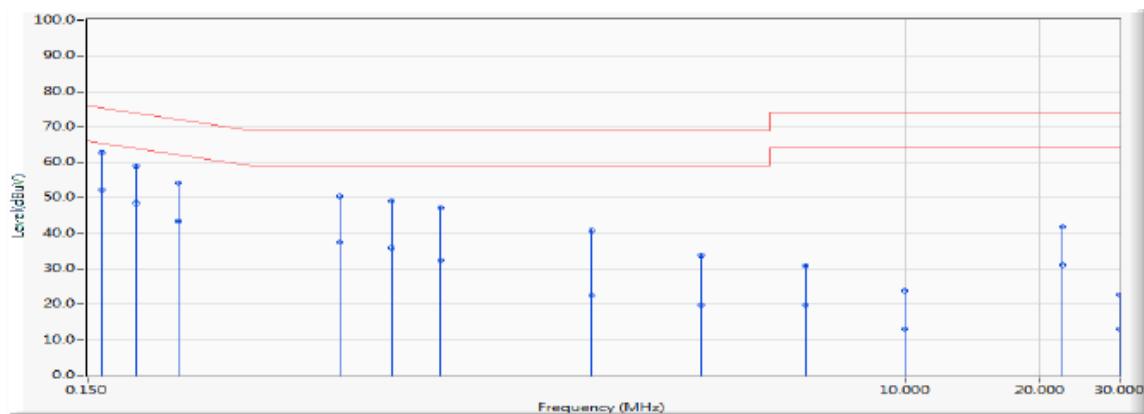
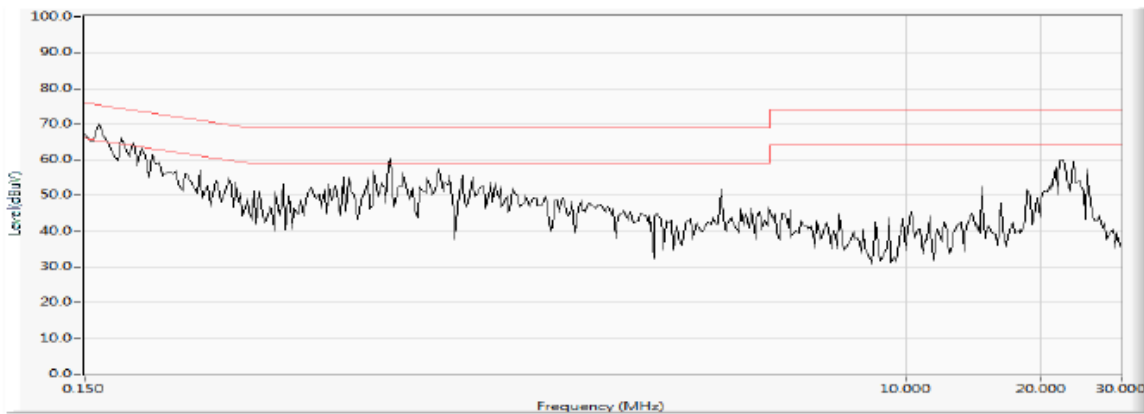
Performed measurements

Scan range (0,9 – 1,1 U_N)	<input type="checkbox"/>	198 – 264 V _{AC}	<input type="checkbox"/>	207 – 253 V _{AC}	<input checked="" type="checkbox"/>	230 V _{AC}				
Tested terminal(s) / port	<input checked="" type="checkbox"/>	AC mains input power	<input checked="" type="checkbox"/>	N	<input checked="" type="checkbox"/>	L1	<input type="checkbox"/>	L2	<input type="checkbox"/>	L3
	<input type="checkbox"/>	DC mains input power	<input type="checkbox"/>	Positive (+)	<input type="checkbox"/>	Negative (-)				
Voltage – Mains [V]	230 Vac									
Frequency – Mains [Hz]	50 Hz									
Test method applied	<input checked="" type="checkbox"/>	Artificial mains network								
	<input type="checkbox"/>	Voltage probe								
Test setup	<input type="checkbox"/>	Table top	<input checked="" type="checkbox"/>	Artificial hand applied						
	<input type="checkbox"/>	Floor standing	<input type="checkbox"/>	Other:						
Refer to the Annex 3 for test setup photo(s).										
Operating mode(s) used	Mode 1									
Remark	---									

Measurement data	Port under test	AC mains power input
Operating mode / voltage / frequency used during the test		Mode 1/ 230 Vac/ 50 Hz
DP100		

Results for 220-240v model

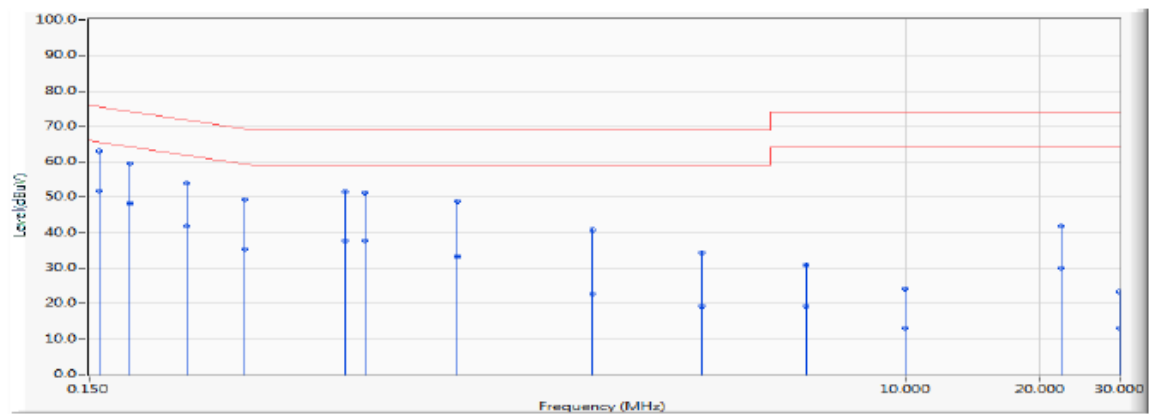
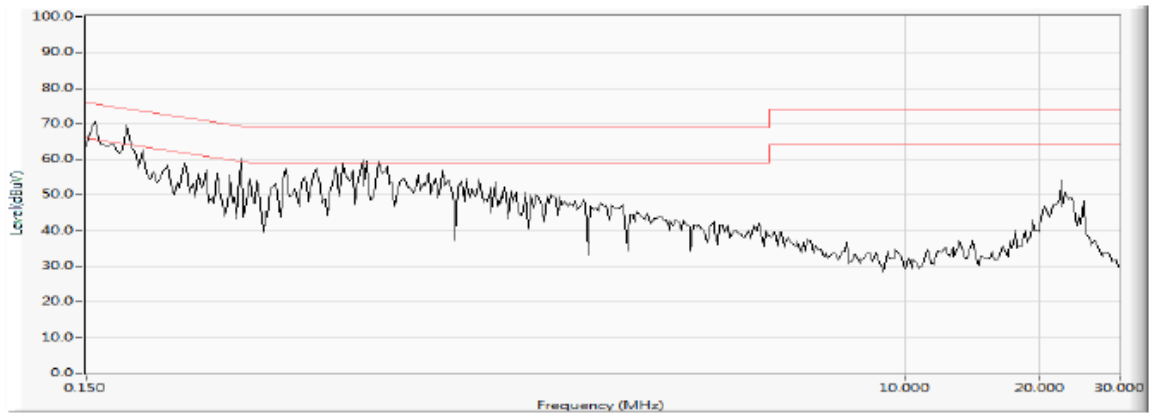
Line



Measurement data				Port under test		AC mains power input		
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	*	0.162	9.680	53.140	62.820	-12.544	75.364	QUASPEAK
2		0.162	9.680	42.660	52.340	-15.752	68.092	AVERAGE
3		0.193	9.680	49.280	58.960	-14.958	73.918	QUASPEAK
4		0.193	9.680	38.910	48.590	-17.435	66.025	AVERAGE
5		0.240	9.680	44.350	54.030	-18.087	72.117	QUASPEAK
6		0.240	9.680	33.800	43.480	-19.973	63.453	AVERAGE
7		0.550	9.693	40.770	50.462	-18.538	69.000	QUASPEAK
8		0.550	9.693	27.730	37.422	-21.578	59.000	AVERAGE
9		0.716	9.728	39.330	49.058	-19.942	69.000	QUASPEAK
10		0.716	9.728	26.120	35.848	-23.152	59.000	AVERAGE
11		0.920	9.773	37.310	47.082	-21.918	69.000	QUASPEAK
12		0.920	9.773	22.790	32.562	-26.438	59.000	AVERAGE
13		2.000	9.800	30.820	40.620	-28.380	69.000	QUASPEAK
14		2.000	9.800	12.810	22.610	-36.390	59.000	AVERAGE
15		3.500	9.807	23.910	33.717	-35.283	69.000	QUASPEAK
16		3.500	9.807	10.050	19.857	-39.143	59.000	AVERAGE
17		6.000	9.877	20.890	30.767	-43.233	74.000	QUASPEAK
18		6.000	9.877	9.950	19.827	-44.173	64.000	AVERAGE
19		10.000	10.090	13.870	23.960	-50.040	74.000	QUASPEAK
20		10.000	10.090	2.950	13.040	-50.960	64.000	AVERAGE
21		22.384	10.427	31.400	41.827	-32.173	74.000	QUASPEAK
22		22.384	10.427	20.640	31.067	-32.933	64.000	AVERAGE
23		30.000	10.580	12.200	22.780	-51.220	74.000	QUASPEAK
24		30.000	10.580	2.640	13.220	-50.780	64.000	AVERAGE
Remark								

Measurement data	Port under test	AC mains power input
Operating mode / voltage / frequency used during the test		Mode 1/ 230 Vac/ 50 Hz
DP100		

Neutral



Measurement data				Port under test		AC mains power input		
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	*	0.158	9.680	53.220	62.900	-12.670	75.571	QUASIPeAK
2		0.158	9.680	42.050	51.730	-16.656	68.387	AVERAGE
3		0.185	9.680	49.810	59.490	-14.777	74.267	QUASIPeAK
4		0.185	9.680	38.520	48.200	-18.325	66.525	AVERAGE
5		0.248	9.680	44.080	53.760	-18.086	71.846	QUASIPeAK
6		0.248	9.680	32.260	41.940	-21.126	63.066	AVERAGE
7		0.334	9.680	39.770	49.450	-19.937	69.387	QUASIPeAK
8		0.334	9.680	25.780	35.460	-24.092	59.552	AVERAGE
9		0.560	9.695	41.810	51.505	-17.495	69.000	QUASIPeAK
10		0.560	9.695	28.060	37.755	-21.245	59.000	AVERAGE
11		0.619	9.708	41.600	51.307	-17.693	69.000	QUASIPeAK
12		0.619	9.708	28.120	37.827	-21.173	59.000	AVERAGE
13		1.000	9.790	38.940	48.730	-20.270	69.000	QUASIPeAK
14		1.000	9.790	23.390	33.180	-25.820	59.000	AVERAGE
15		2.000	9.800	31.050	40.850	-28.150	69.000	QUASIPeAK
16		2.000	9.800	12.950	22.750	-36.250	59.000	AVERAGE
17		3.500	9.815	24.410	34.225	-34.775	69.000	QUASIPeAK
18		3.500	9.815	9.580	19.395	-39.605	59.000	AVERAGE
19		6.000	9.880	20.970	30.850	-43.150	74.000	QUASIPeAK
20		6.000	9.880	9.380	19.260	-44.740	64.000	AVERAGE
21		10.000	10.080	14.170	24.250	-49.750	74.000	QUASIPeAK
22		10.000	10.080	3.070	13.150	-50.850	64.000	AVERAGE
23		22.201	10.358	31.390	41.748	-32.252	74.000	QUASIPeAK
24		22.201	10.358	19.750	30.108	-33.892	64.000	AVERAGE
25		30.000	10.450	12.850	23.300	-50.700	74.000	QUASIPeAK
26		30.000	10.450	2.580	13.030	-50.970	64.000	AVERAGE
Remark								

Limits – Tools

Frequency range [MHz]	Limit: QP [dB(μV) ¹⁾	Limit: AV [dB(μV) ¹⁾	IF BW	Detector(s)
0,15 - 0,35	66 – 56 ²⁾	59 - 46 ²⁾	9 KHz	QP, CAV
0,35 - 5,0	56	46	9 KHz	QP, CAV
5,0 - 30	60	50	9 KHz	QP, CAV
¹⁾ At the transition frequency, the lower limit applies. ²⁾ The limit decreases linearly with the logarithm of the frequency.				
<input type="checkbox"/>	Rated power below 700 W	Limits as above		
<input checked="" type="checkbox"/>	Rated power between 700 and 1000 W	Limits +4 dB		
<input type="checkbox"/>	Rated power above 1000 W	Limits +10 dB		

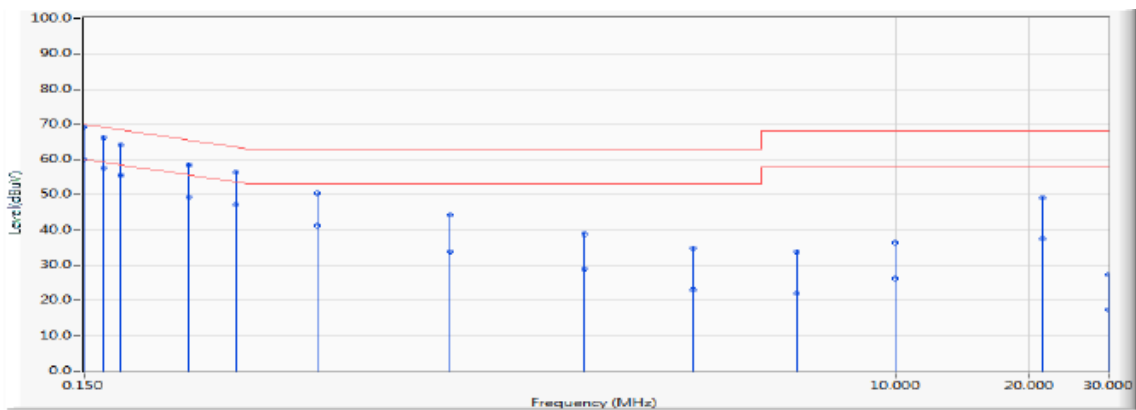
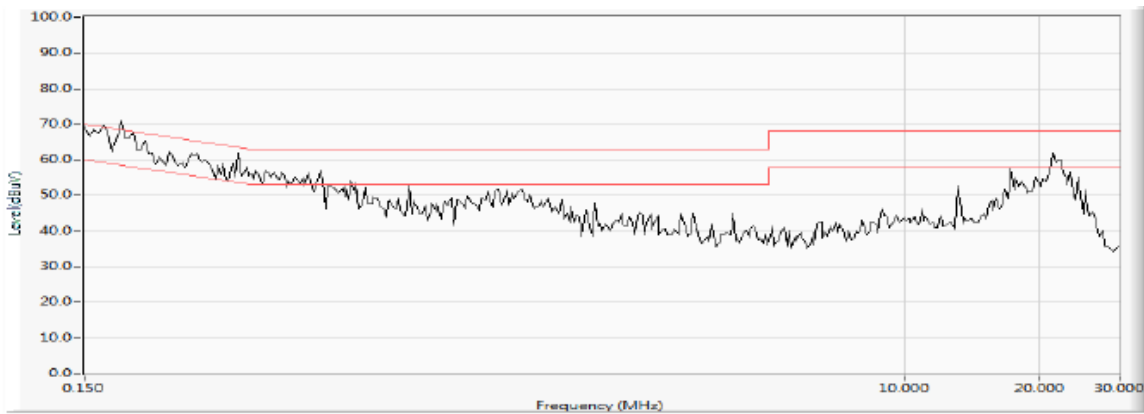
Performed measurements

Scan range (0,9 – 1,1 U _N)	<input type="checkbox"/>	198 – 264 V _{AC}	<input type="checkbox"/>	207 – 253 V _{AC}	<input checked="" type="checkbox"/>	110 V _{AC}				
Tested terminal(s) / port	<input checked="" type="checkbox"/>	AC mains input power	<input checked="" type="checkbox"/>	N	<input checked="" type="checkbox"/>	L1	<input type="checkbox"/>	L2	<input type="checkbox"/>	L3
	<input type="checkbox"/>	DC mains input power	<input type="checkbox"/>	Positive (+)	<input type="checkbox"/>	Negative (-)				
Voltage – Mains [V]	110 Vac									
Frequency – Mains [Hz]	60 Hz									
Test method applied	<input checked="" type="checkbox"/>	Artificial mains network								
	<input type="checkbox"/>	Voltage probe								
Test setup	<input type="checkbox"/>	Table top	<input checked="" type="checkbox"/>	Artificial hand applied						
	<input type="checkbox"/>	Floor standing	<input type="checkbox"/>	Other:						
Refer to the Annex 3 for test setup photo(s).										
Operating mode(s) used	Mode 1									
Remark	---									

Measurement data	Port under test	AC mains power input
Operating mode / voltage / frequency used during the test		Mode 1/ 110 Vac/ 60 Hz
DP100		

Results for 110-120v model

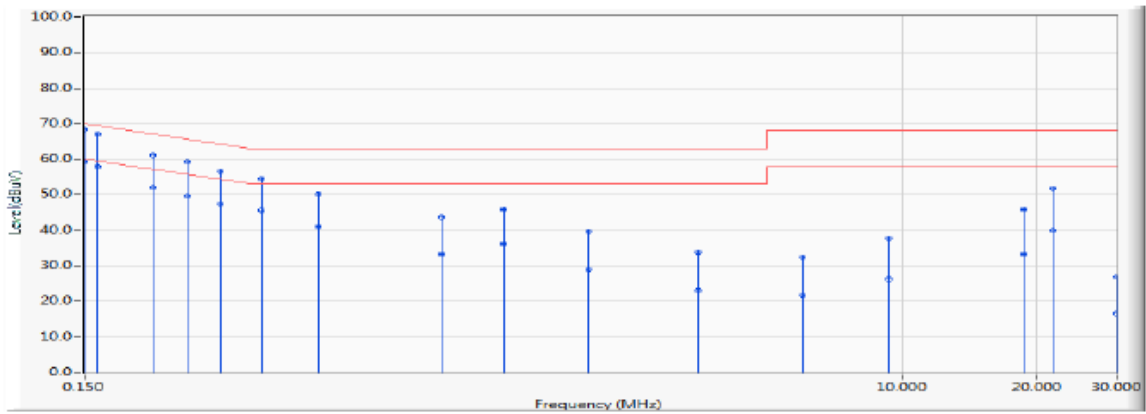
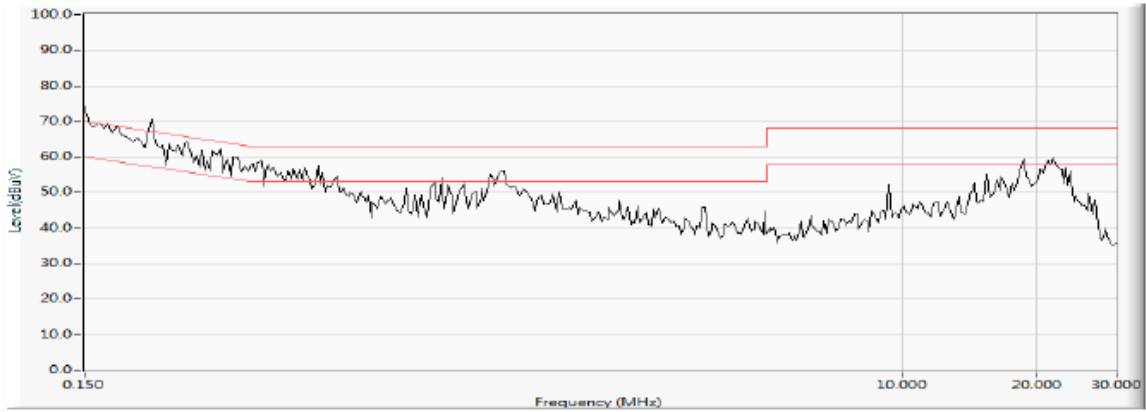
Line



Measurement data				Port under test		AC mains power input		
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	*	0.150	9.680	59.400	69.080	-0.920	70.000	QUASIPeAK
2		0.150	9.680	50.250	59.930	-3.070	63.000	AVERAGE
3		0.166	9.680	56.660	66.340	-2.823	69.163	QUASIPeAK
4		0.166	9.680	47.950	57.630	-4.174	61.804	AVERAGE
5		0.181	9.680	54.520	64.200	-4.248	68.448	QUASIPeAK
6		0.181	9.680	45.930	55.610	-5.173	60.783	AVERAGE
7		0.259	9.680	48.730	58.410	-7.078	65.488	QUASIPeAK
8		0.259	9.680	39.780	49.460	-7.094	56.554	AVERAGE
9		0.330	9.680	46.740	56.420	-7.066	63.486	QUASIPeAK
10		0.330	9.680	37.540	47.220	-6.474	53.694	AVERAGE
11		0.502	9.684	40.670	50.353	-12.647	63.000	QUASIPeAK
12		0.502	9.684	31.620	41.303	-11.697	53.000	AVERAGE
13		1.000	9.790	34.420	44.210	-18.790	63.000	QUASIPeAK
14		1.000	9.790	24.120	33.910	-19.090	53.000	AVERAGE
15		2.000	9.800	29.200	39.000	-24.000	63.000	QUASIPeAK
16		2.000	9.800	19.040	28.840	-24.160	53.000	AVERAGE
17		3.500	9.807	24.960	34.767	-28.233	63.000	QUASIPeAK
18		3.500	9.807	13.230	23.037	-29.963	53.000	AVERAGE
19		6.000	9.877	23.840	33.717	-34.283	68.000	QUASIPeAK
20		6.000	9.877	12.170	22.047	-35.953	58.000	AVERAGE
21		10.000	10.090	26.400	36.490	-31.510	68.000	QUASIPeAK
22		10.000	10.090	16.150	26.240	-31.760	58.000	AVERAGE
23		21.314	10.419	38.690	49.109	-18.891	68.000	QUASIPeAK
24		21.314	10.419	27.060	37.479	-20.521	58.000	AVERAGE
25		30.000	10.580	16.840	27.420	-40.580	68.000	QUASIPeAK
26		30.000	10.580	6.780	17.360	-40.640	58.000	AVERAGE
Remark								

Measurement data	Port under test	AC mains power input
Operating mode / voltage / frequency used during the test		Mode 1/ 110 Vac/ 60 Hz
DP100		

Neutral



Measurement data				Port under test		AC mains power input		
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	*	0.150	9.681	58.700	68.381	-1.619	70.000	QUASIPeAK
2		0.150	9.681	49.640	59.321	-3.679	63.000	AVERAGE
3		0.160	9.680	57.280	66.960	-2.507	69.467	QUASIPeAK
4		0.160	9.680	48.340	58.020	-4.218	62.238	AVERAGE
5		0.213	9.680	51.470	61.150	-5.953	67.103	QUASIPeAK
6		0.213	9.680	42.410	52.090	-6.771	58.861	AVERAGE
7		0.255	9.680	49.580	59.260	-6.356	65.616	QUASIPeAK
8		0.255	9.680	40.050	49.730	-7.007	56.737	AVERAGE
9		0.302	9.680	46.840	56.520	-7.699	64.219	QUASIPeAK
10		0.302	9.680	37.800	47.480	-7.261	54.741	AVERAGE
11		0.373	9.680	44.850	54.530	-8.470	63.000	QUASIPeAK
12		0.373	9.680	35.850	45.530	-7.470	53.000	AVERAGE
13		0.498	9.683	40.580	50.263	-12.737	63.000	QUASIPeAK
14		0.498	9.683	31.420	41.103	-11.897	53.000	AVERAGE
15		0.939	9.777	33.890	43.667	-19.333	63.000	QUASIPeAK
16		0.939	9.777	23.420	33.197	-19.803	53.000	AVERAGE
17		1.291	9.793	35.920	45.713	-17.287	63.000	QUASIPeAK
18		1.291	9.793	26.410	36.203	-16.797	53.000	AVERAGE
19		2.000	9.800	29.830	39.630	-23.370	63.000	QUASIPeAK
20		2.000	9.800	19.160	28.960	-24.040	53.000	AVERAGE
21		3.500	9.815	24.070	33.885	-29.115	63.000	QUASIPeAK
22		3.500	9.815	13.230	23.045	-29.955	53.000	AVERAGE
23		6.000	9.880	22.500	32.380	-35.620	68.000	QUASIPeAK
24		6.000	9.880	11.880	21.760	-36.240	58.000	AVERAGE
25		9.337	10.046	27.640	37.687	-30.313	68.000	QUASIPeAK
26		9.337	10.046	16.120	26.167	-31.833	58.000	AVERAGE
27		18.619	10.349	35.380	45.729	-22.271	68.000	QUASIPeAK
28		18.619	10.349	22.990	33.339	-24.661	58.000	AVERAGE
29		21.638	10.358	41.360	51.718	-16.282	68.000	QUASIPeAK
30		21.638	10.358	29.620	39.978	-18.022	58.000	AVERAGE
31		30.000	10.450	16.360	26.810	-41.190	68.000	QUASIPeAK
32		30.000	10.450	6.260	16.710	-41.290	58.000	AVERAGE
Remark								

4.2 Conducted disturbance voltage– Load terminals	VERDICT: N/A
--	---------------------

Standard	EN 55014-1
Basic standard	EN 55016-2-1

Limits

Frequency range [MHz]	Limit: QP [dB(μV) ¹⁾	Limit: AV [dB(μV) ¹⁾	IF BW	Detector(s)
0,15 - 0,50	80	70	9 KHz	QP, CAV
5,0 - 30	74	64	9 KHz	QP, CAV

¹⁾ At the transition frequency, the lower limit applies.

Performed measurements

Port(s) / Terminal(s) under test	
<input type="checkbox"/> (please write the name of the port under test)	<input type="checkbox"/> Other:
<input type="checkbox"/> Other:	<input type="checkbox"/> Other:
Voltage – Mains [V]	(Please write the voltage/voltages used for testing)
Frequency – Mains [Hz]	(Please write the frequency/frequencies used for testing)
Test method applied	<input type="checkbox"/> Voltage probe
	<input type="checkbox"/> ISN – Impedance Stabilisation Network
	<input type="checkbox"/> GDN according to EN / IEC 61000-4-6
	<input type="checkbox"/> Current probe
	<input type="checkbox"/> Artificial mains network
Test setup	<input type="checkbox"/> Table top <input type="checkbox"/> Artificial hand applied
	<input type="checkbox"/> Floor standing <input type="checkbox"/> Other:
	Refer to the Annex 3 for test setup photo(s).
Operating mode(s) used	Please write the operating mode(s) used during testing
Remark	---

4.3 Conducted disturbance voltage– Additional terminals	VERDICT: N/A
--	---------------------

Standard	EN 55014-1
Basic standard	EN 55016-2-1

Limits

Frequency range [MHz]	Limit: QP [dB(μV) ¹⁾	Limit: AV [dB(μV) ¹⁾	IF BW	Detector(s)
0,15 - 0,50	80	70	9 KHz	QP, CAV
5,0 - 30	74	64	9 KHz	QP, CAV

¹⁾ At the transition frequency, the lower limit applies.

Performed measurements

Port(s) / Terminal(s) under test			
<input type="checkbox"/>	(please write the name of the port under test)		<input type="checkbox"/> Other:
<input type="checkbox"/>	Other:		<input type="checkbox"/> Other:
Voltage — Mains [V]		(Please write the voltage/voltages used for testing)	
Frequency — Mains [Hz]		(Please write the frequency/frequencies used for testing)	
Test method applied	<input type="checkbox"/>	GDN according to EN / IEC 61000-4-6	
	<input type="checkbox"/>	ISN — Impedance Stabilisation Network	
	<input type="checkbox"/>	Voltage probe	
	<input type="checkbox"/>	Current probe	
	<input type="checkbox"/>	Artificial mains network	
	<input type="checkbox"/>	Other:	
Test setup	<input type="checkbox"/>	Table top	<input type="checkbox"/> Artificial hand applied
	<input type="checkbox"/>	Floor standing	<input type="checkbox"/> Other:
	Refer to the Annex 3 for test setup photo(s).		
Operating mode(s) used		Please write the operating mode(s) used during testing	
Remark		---	

4.4 Disturbance power (30 MHz – 300 MHz)	VERDICT: PASS
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Standard	EN 55014-1
Basic standard	EN 55016-2-2

Limits – Tools

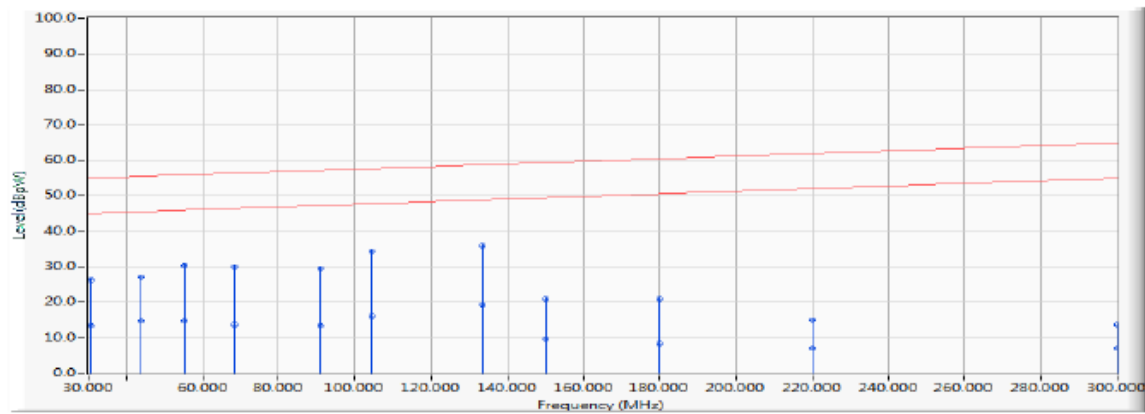
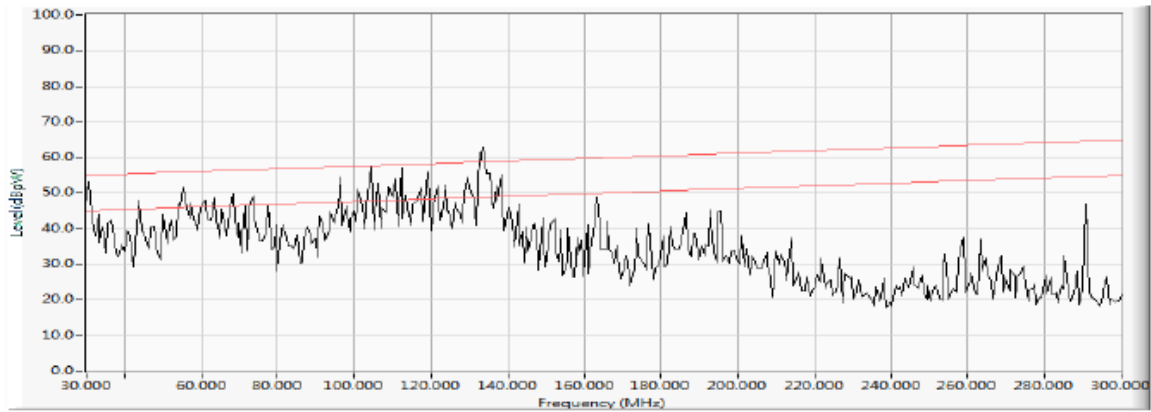
Frequency range [MHz]	Limit: QP [dB(pW)]	Limit: AV [dB(pW)]	IF BW	Detector(s)
30 - 300	45 – 55 ¹⁾	35 – 45 ¹⁾	120 KHz	QP, CAV
Margin				
200 - 300	0 – 10 ¹⁾	---	120 KHz	QP, CAV
¹⁾ The limit increases linearly with the frequency.				
<input type="checkbox"/>	Rated power below 700 W		Limits as above	
<input type="checkbox"/>	Rated power between 700 and 1000 W		Limits +4 dB	
<input checked="" type="checkbox"/>	Rated power above 1000 W		Limits +10 dB	

Performed measurements

Port(s) under test						
<input checked="" type="checkbox"/>	AC mains input power	<input type="checkbox"/>	Load	<input type="checkbox"/>	Control	
<input type="checkbox"/>	Other:	<input type="checkbox"/>	Other:	<input type="checkbox"/>	Other:	
Scan range (0,9 – 1,1 U _N)	<input type="checkbox"/>	198 – 264 V _{AC}	<input type="checkbox"/>	207 – 253 V _{AC}	<input checked="" type="checkbox"/>	230 V _{AC}
Voltage – Mains [V]	230 Vac					
Frequency – Mains [Hz]	50 Hz					
Test setup	<input checked="" type="checkbox"/>	Table top	<input type="checkbox"/>	Floor standing		
	<input type="checkbox"/>	Other:				
Refer to the Annex 3 for test setup photo(s).						
Conditions for exemption from measurements above 300 MHz	<input checked="" type="checkbox"/>	“Limits” reduced by “Margin” applied and passed				
	<input type="checkbox"/>	Maximum clock frequency < 30 MHz				
Operating mode(s) used	Mode 1					
Remark	---					

Measurement data	Port under test	AC mains power input
Operating mode / voltage / frequency used during the test		Mode 1/ 230 Vac/ 50 Hz
WS620		

Results for 220-240v model



Measurement data				Port under test		AC mains power input		
	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBpW)	Measure Level (dBpW)	Margin (dB)	Limit (dBpW)	Detector Type	
1	30.562	2.933	23.440	26.373	-28.708	55.081	QUASIPeAK	
2	30.562	2.933	10.520	13.453	-31.628	45.081	AVERAGE	
3	43.750	1.688	25.280	26.968	-29.671	56.639	QUASIPeAK	
4	43.750	1.688	13.110	14.798	-31.841	46.639	AVERAGE	
5	55.437	1.609	28.750	30.359	-27.308	57.667	QUASIPeAK	
6	55.437	1.609	13.180	14.789	-32.878	47.667	AVERAGE	
7	68.312	0.121	29.820	29.941	-28.633	58.574	QUASIPeAK	
8	68.312	0.121	13.620	13.741	-34.833	48.574	AVERAGE	
9	91.000	0.690	28.710	29.400	-30.419	59.819	QUASIPeAK	
10	91.000	0.690	12.770	13.460	-36.359	49.819	AVERAGE	
11	104.312	0.600	33.610	34.210	-26.202	60.412	QUASIPeAK	
12	104.312	0.600	15.400	16.000	-34.412	50.412	AVERAGE	
13	*	133.625	0.055	35.820	35.875	-25.613	61.488	QUASIPeAK
14		133.625	0.055	19.220	19.275	-32.213	51.488	AVERAGE
15		150.000	-0.500	21.440	20.940	-41.050	61.990	QUASIPeAK
16		150.000	-0.500	10.210	9.710	-42.280	51.990	AVERAGE
17		180.000	-1.199	22.240	21.041	-41.740	62.782	QUASIPeAK
18		180.000	-1.199	9.470	8.271	-44.510	52.782	AVERAGE
19		220.000	-1.298	16.290	14.992	-48.661	63.653	QUASIPeAK
20		220.000	-1.298	8.150	6.852	-46.801	53.653	AVERAGE
21		300.000	-1.095	14.830	13.735	-51.265	65.000	QUASIPeAK
22		300.000	-1.095	7.980	6.885	-48.115	55.000	AVERAGE
Remark								

Limits – Tools

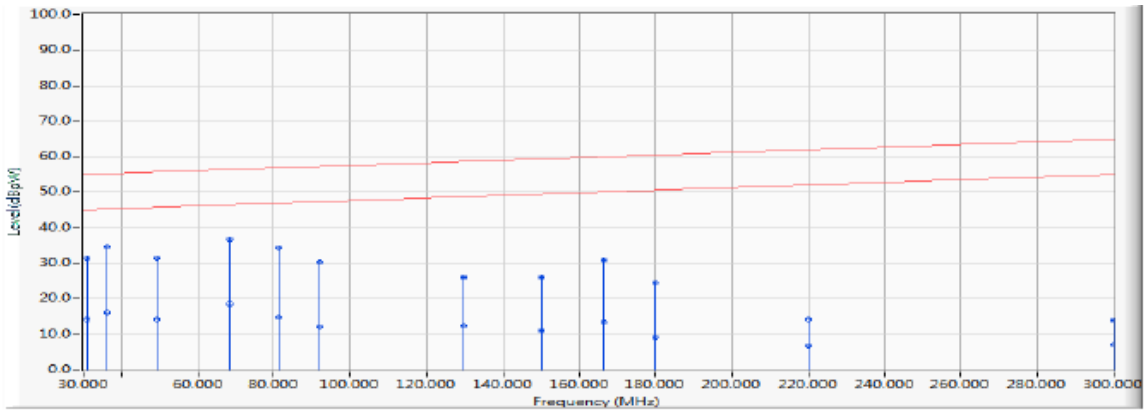
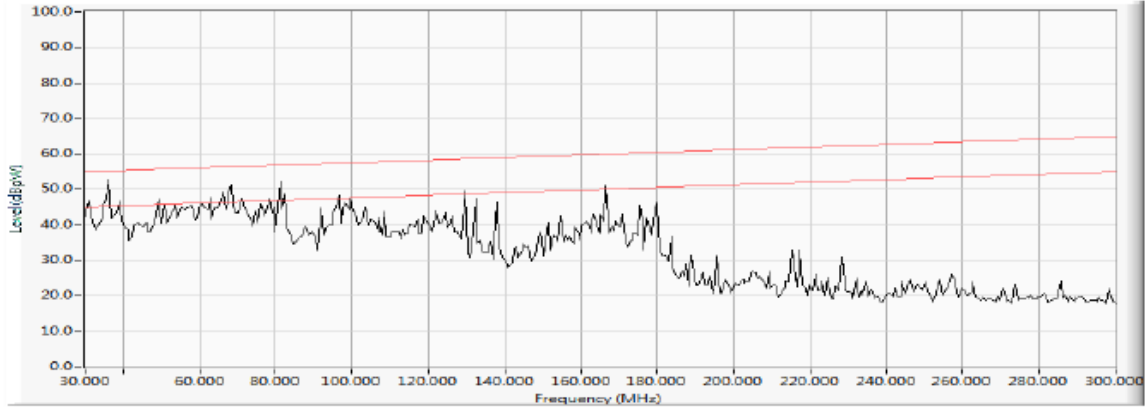
Frequency range [MHz]	Limit: QP [dB(pW)]	Limit: AV [dB(pW)]	IF BW	Detector(s)
30 - 300	45 – 55 ¹⁾	35 – 45 ¹⁾	120 KHz	QP, CAV
Margin				
200 - 300	0 – 10 ¹⁾	---	120 KHz	QP, CAV
¹⁾ The limit increases linearly with the frequency.				
<input type="checkbox"/>	Rated power below 700 W			Limits as above
<input type="checkbox"/>	Rated power between 700 and 1000 W			Limits +4 dB
<input checked="" type="checkbox"/>	Rated power above 1000 W			Limits +10 dB

Performed measurements

Port(s) under test						
<input checked="" type="checkbox"/>	AC mains input power	<input type="checkbox"/>	Load	<input type="checkbox"/>	Control	
<input type="checkbox"/>	Other:	<input type="checkbox"/>	Other:	<input type="checkbox"/>	Other:	
Scan range (0,9 – 1,1 U _N)	<input type="checkbox"/>	198 – 264 V _{AC}	<input type="checkbox"/>	207 – 253 V _{AC}	<input checked="" type="checkbox"/>	110 V _{AC}
Voltage – Mains [V]	110 Vac					
Frequency – Mains [Hz]	60 Hz					
Test setup	<input checked="" type="checkbox"/>	Table top	<input type="checkbox"/>	Floor standing		
	<input type="checkbox"/>	Other:				
	Refer to the Annex 3 for test setup photo(s).					
Conditions for exemption from measurements above 300 MHz	<input checked="" type="checkbox"/>	“Limits” reduced by “Margin” applied and passed				
	<input type="checkbox"/>	Maximum clock frequency < 30 MHz				
Operating mode(s) used	Mode 1					
Remark	---					

Measurement data	Port under test	AC mains power input
Operating mode / voltage / frequency used during the test		Mode 1/ 110 Vac/ 60 Hz
WS620		

Results for 110-120v model



Measurement data				Port under test		AC mains power input		
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBpW)	Measure Level (dBpW)	Margin (dB)	Limit (dBpW)	Detector Type
1		31.125	2.865	28.630	31.495	-23.665	55.160	QUASIPeAK
2		31.125	2.865	11.400	14.265	-30.895	45.160	AVERAGE
3	*	36.250	2.250	32.460	34.710	-21.112	55.822	QUASIPeAK
4		36.250	2.250	13.880	16.130	-29.692	45.822	AVERAGE
5		49.375	1.519	29.860	31.379	-25.785	57.164	QUASIPeAK
6		49.375	1.519	12.770	14.289	-32.875	47.164	AVERAGE
7		68.437	0.097	36.570	36.667	-21.915	58.582	QUASIPeAK
8		68.437	0.097	18.440	18.537	-30.045	48.582	AVERAGE
9		81.125	0.434	33.800	34.234	-25.087	59.320	QUASIPeAK
10		81.125	0.434	14.260	14.694	-34.627	49.320	AVERAGE
11		92.000	0.680	29.680	30.360	-29.507	59.867	QUASIPeAK
12		92.000	0.680	11.290	11.970	-37.897	49.867	AVERAGE
13		129.625	0.215	25.840	26.055	-35.301	61.356	QUASIPeAK
14		129.625	0.215	12.080	12.295	-39.061	51.356	AVERAGE
15		150.000	-0.500	26.460	25.960	-36.030	61.990	QUASIPeAK
16		150.000	-0.500	11.620	11.120	-40.870	51.990	AVERAGE
17		166.437	-0.929	31.770	30.841	-31.600	62.441	QUASIPeAK
18		166.437	-0.929	14.290	13.361	-39.080	52.441	AVERAGE
19		180.000	-1.199	25.670	24.471	-38.310	62.782	QUASIPeAK
20		180.000	-1.199	10.410	9.211	-43.570	52.782	AVERAGE
21		220.000	-1.298	15.510	14.212	-49.441	63.653	QUASIPeAK
22		220.000	-1.298	8.050	6.752	-46.901	53.653	AVERAGE
23		300.000	-1.095	14.950	13.855	-51.145	65.000	QUASIPeAK
24		300.000	-1.095	7.980	6.885	-48.115	55.000	AVERAGE
Remark								

Limits – Tools

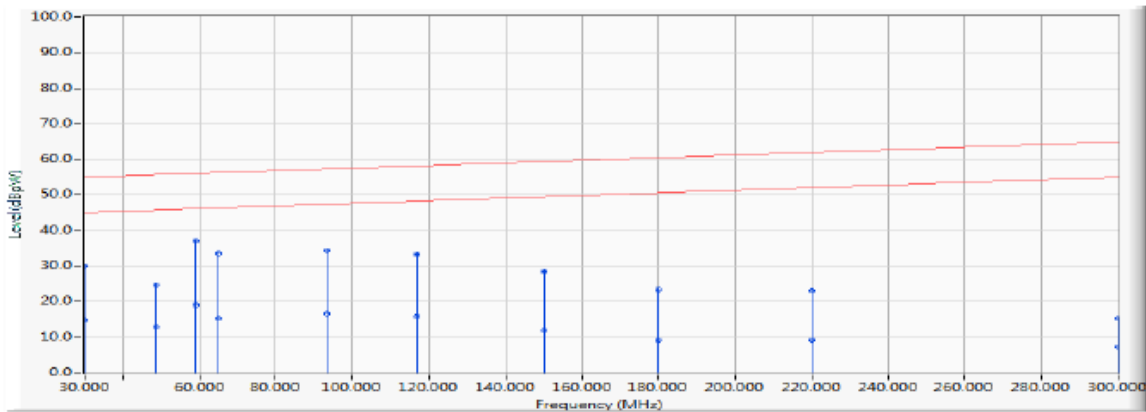
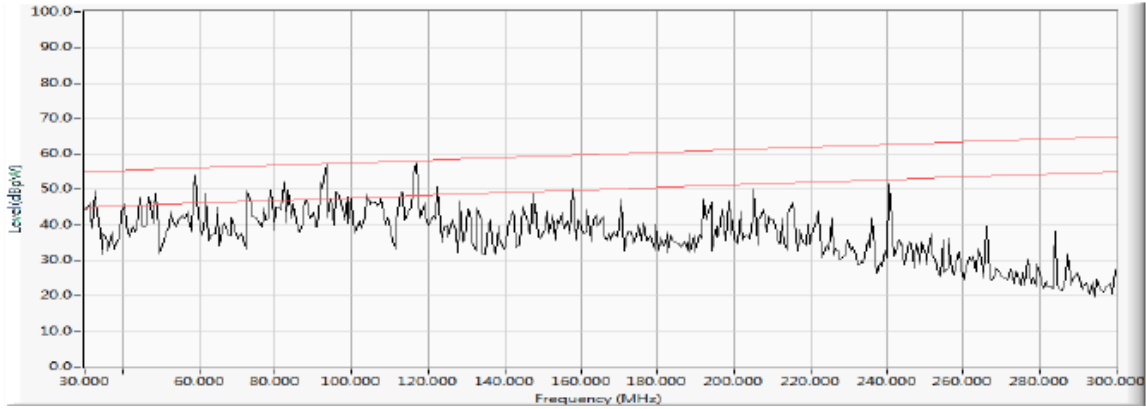
Frequency range [MHz]	Limit: QP [dB(pW)]	Limit: AV [dB(pW)]	IF BW	Detector(s)
30 - 300	45 – 55 ¹⁾	35 – 45 ¹⁾	120 KHz	QP, CAV
Margin				
200 - 300	0 – 10 ¹⁾	---	120 KHz	QP, CAV
¹⁾ The limit increases linearly with the frequency.				
<input type="checkbox"/>	Rated power below 700 W			Limits as above
<input type="checkbox"/>	Rated power between 700 and 1000 W			Limits +4 dB
<input checked="" type="checkbox"/>	Rated power above 1000 W			Limits +10 dB

Performed measurements

Port(s) under test						
<input checked="" type="checkbox"/>	AC mains input power	<input type="checkbox"/>	Load	<input type="checkbox"/>	Control	
<input type="checkbox"/>	Other:	<input type="checkbox"/>	Other:	<input type="checkbox"/>	Other:	
Scan range (0,9 – 1,1 U _N)	<input type="checkbox"/>	198 – 264 V _{AC}	<input type="checkbox"/>	207 – 253 V _{AC}	<input checked="" type="checkbox"/>	230 V _{AC}
Voltage – Mains [V]	230 Vac					
Frequency – Mains [Hz]	50 Hz					
Test setup	<input checked="" type="checkbox"/>	Table top	<input type="checkbox"/>	Floor standing		
	<input type="checkbox"/>	Other:				
	Refer to the Annex 3 for test setup photo(s).					
Conditions for exemption from measurements above 300 MHz	<input checked="" type="checkbox"/>	“Limits” reduced by “Margin” applied and passed				
	<input type="checkbox"/>	Maximum clock frequency < 30 MHz				
Operating mode(s) used	Mode 1					
Remark	---					

Measurement data	Port under test	AC mains power input
Operating mode / voltage / frequency used during the test		Mode 1/ 230 Vac/ 50 Hz
DP100		

Results for 220-240v model



Measurement data				Port under test		AC mains power input		
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBpW)	Measure Level (dBpW)	Margin (dB)	Limit (dBpW)	Detector Type
1		30.000	3.000	26.940	29.940	-25.060	55.000	QUASPEAK
2		30.000	3.000	11.670	14.670	-30.330	45.000	AVERAGE
3		48.750	1.538	23.150	24.688	-32.421	57.109	QUASPEAK
4		48.750	1.538	11.460	12.998	-34.111	47.109	AVERAGE
5	*	59.250	1.683	35.190	36.873	-21.083	57.956	QUASPEAK
6		59.250	1.683	17.350	19.033	-28.923	47.956	AVERAGE
7		65.000	0.750	32.890	33.640	-24.718	58.358	QUASPEAK
8		65.000	0.750	14.580	15.330	-33.028	48.358	AVERAGE
9		93.375	0.666	33.680	34.346	-25.585	59.931	QUASPEAK
10		93.375	0.666	15.920	16.586	-33.345	49.931	AVERAGE
11		116.750	0.600	32.720	33.320	-27.581	60.901	QUASPEAK
12		116.750	0.600	15.200	15.800	-35.101	50.901	AVERAGE
13		150.000	-0.500	28.920	28.420	-33.570	61.990	QUASPEAK
14		150.000	-0.500	12.180	11.680	-40.310	51.990	AVERAGE
15		180.000	-1.199	24.620	23.421	-39.360	62.782	QUASPEAK
16		180.000	-1.199	10.330	9.131	-43.650	52.782	AVERAGE
17		220.000	-1.298	24.340	23.042	-40.611	63.653	QUASPEAK
18		220.000	-1.298	10.410	9.112	-44.541	53.653	AVERAGE
19		300.000	-1.095	16.420	15.325	-49.675	65.000	QUASPEAK
20		300.000	-1.095	8.210	7.115	-47.885	55.000	AVERAGE
Remark								

Limits – Tools

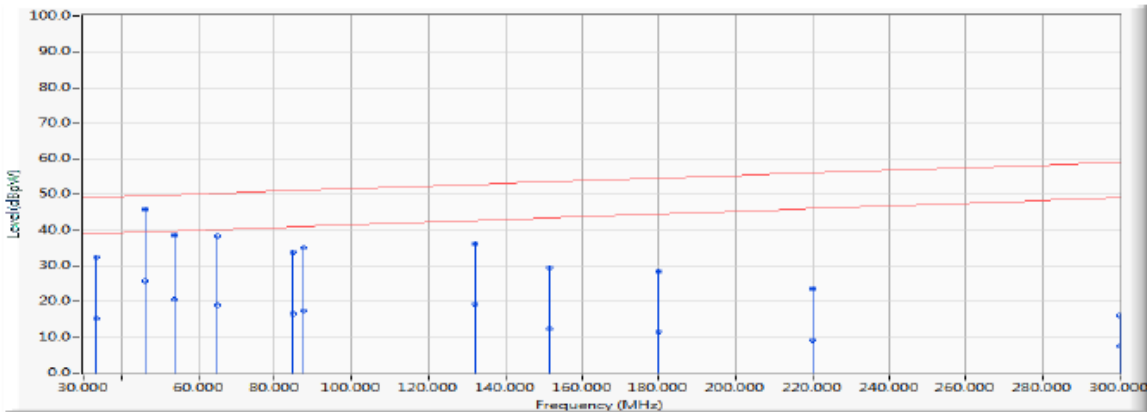
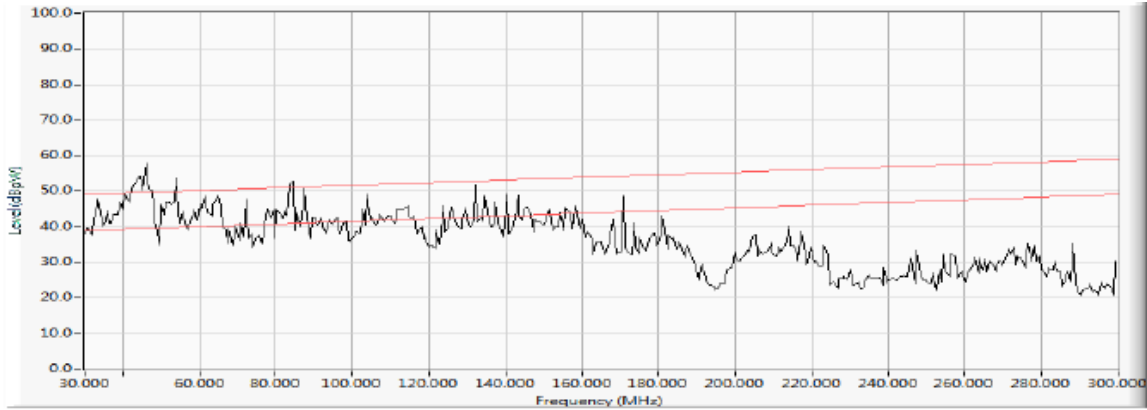
Frequency range [MHz]	Limit: QP [dB(pW)]	Limit: AV [dB(pW)]	IF BW	Detector(s)
30 - 300	45 – 55 ¹⁾	35 – 45 ¹⁾	120 KHz	QP, CAV
Margin				
200 - 300	0 – 10 ¹⁾	---	120 KHz	QP, CAV
¹⁾ The limit increases linearly with the frequency.				
<input type="checkbox"/>	Rated power below 700 W			Limits as above
<input checked="" type="checkbox"/>	Rated power between 700 and 1000 W			Limits +4 dB
<input type="checkbox"/>	Rated power above 1000 W			Limits +10 dB

Performed measurements

Port(s) under test						
<input checked="" type="checkbox"/>	AC mains input power	<input type="checkbox"/>	Load	<input type="checkbox"/>	Control	
<input type="checkbox"/>	Other:	<input type="checkbox"/>	Other:	<input type="checkbox"/>	Other:	
Scan range (0,9 – 1,1 U _N)	<input type="checkbox"/>	198 – 264 V _{AC}	<input type="checkbox"/>	207 – 253 V _{AC}	<input checked="" type="checkbox"/>	110 V _{AC}
Voltage – Mains [V]	110 Vac					
Frequency – Mains [Hz]	60 Hz					
Test setup	<input checked="" type="checkbox"/>	Table top	<input type="checkbox"/>	Floor standing		
	<input type="checkbox"/>	Other:				
	Refer to the Annex 3 for test setup photo(s).					
Conditions for exemption from measurements above 300 MHz	<input checked="" type="checkbox"/>	“Limits” reduced by “Margin” applied and passed				
	<input type="checkbox"/>	Maximum clock frequency < 30 MHz				
Operating mode(s) used	Mode 1					
Remark	---					

Measurement data	Port under test	AC mains power input
Operating mode / voltage / frequency used during the test		Mode 1/ 110 Vac/ 60 Hz
DP100		

Results for 110-120v model



Measurement data			Port under test		AC mains power input			
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBpW)	Measure Level (dBpW)	Margin (dB)	Limit (dBpW)	Detector Type
1		33.625	2.565	29.910	32.475	-17.020	49.495	QUASIPeAK
2		33.625	2.565	12.760	15.325	-24.170	39.495	AVERAGE
3	*	46.125	1.616	44.290	45.906	-4.962	50.868	QUASIPeAK
4		46.125	1.616	24.060	25.676	-15.192	40.868	AVERAGE
5		53.875	1.577	36.960	38.537	-13.005	51.543	QUASIPeAK
6		53.875	1.577	18.940	20.517	-21.025	41.543	AVERAGE
7		64.812	0.786	37.550	38.336	-14.010	52.345	QUASIPeAK
8		64.812	0.786	18.300	19.086	-23.260	42.345	AVERAGE
9		84.625	0.539	33.270	33.809	-19.695	53.504	QUASIPeAK
10		84.625	0.539	15.990	16.529	-26.975	43.504	AVERAGE
11		87.500	0.625	34.520	35.145	-18.504	53.649	QUASIPeAK
12		87.500	0.625	16.820	17.445	-26.204	43.649	AVERAGE
13		132.062	0.118	36.050	36.168	-19.269	55.437	QUASIPeAK
14		132.062	0.118	19.150	19.268	-26.169	45.437	AVERAGE
15		151.437	-0.543	29.900	29.357	-26.674	56.031	QUASIPeAK
16		151.437	-0.543	12.890	12.347	-33.684	46.031	AVERAGE
17		180.000	-1.199	29.700	28.501	-28.280	56.782	QUASIPeAK
18		180.000	-1.199	12.800	11.601	-35.180	46.782	AVERAGE
19		220.000	-1.298	24.840	23.542	-34.111	57.653	QUASIPeAK
20		220.000	-1.298	10.330	9.032	-38.621	47.653	AVERAGE
21		300.000	-1.095	17.170	16.075	-42.925	59.000	QUASIPeAK
22		300.000	-1.095	8.510	7.415	-41.585	49.000	AVERAGE
Remark								

4.5	Radiated electromagnetic disturbances (30 – 1000 MHz)	VERDICT:	N/A
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Standard	EN 55014-1
Basic standard	EN 55016-2-3
Test method	Antenna method according to EN 55016-2-3 standard.

Limits

Frequency [MHz]	Limit: QP [dB(μV/m) ¹]			IF BW	Detector
	@3 m.	@5 m.	@10 m.		
30 - 230	40	36	30	120 KHz	QP
230 - 1000	47	43	37	120 KHz	QP

¹⁾ At the transition frequency, the lower limit applies.

Performed measurements

Port under test	Enclosure	
Voltage — Mains [V]	(Please write the voltage/voltages used for testing)	
Frequency — Mains [Hz]	(Please write the frequency/frequencies used for testing)	
Test method applied	<input checked="" type="checkbox"/>	OATS or SAC with measurement distance [m]: 3 m.
	<input type="checkbox"/>	OATS or SAC with measurement distance [m]: 5 m.
	<input type="checkbox"/>	OATS or SAC with measurement distance [m]: 10 m.
Test setup	<input checked="" type="checkbox"/>	Equipment on a table of 80 cm height
	<input type="checkbox"/>	Equipment on the floor (insulated from ground plane)
	<input type="checkbox"/>	Other:
		Refer to the Annex 3 for test setup photo(s).
Operating mode(s) used	Please write the operating mode(s) used during testing	
Remark	---	

4.6 Discontinuous disturbance (clicks) on AC power leads	VERDICT: N/A
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Standard	EN 55014-1		
Frequency [MHz]	Limit: QP [dB(μV)]	IF BW	Detector
0,15	66	9 KHz	Quasi-Peak (QP)
0,50	56	9 KHz	Quasi-Peak (QP)
1,40	56	9 KHz	Quasi-Peak (QP)
30,0	60	9 KHz	Quasi-Peak (QP)

Performed measurements

Scan range (0,9 – 1,1 U _N)	<input checked="" type="checkbox"/> 198 – 264 V _{AC}	<input type="checkbox"/> 207 – 253 V _{AC}	<input type="checkbox"/> – V _{AC}
Voltage – Mains [V]	264 Vac		
Frequency – Mains [Hz]	50 Hz		
Test method applied	<input checked="" type="checkbox"/> Artificial mains network		
	<input type="checkbox"/> Voltage probe		
Test setup	<input checked="" type="checkbox"/> Table top	<input type="checkbox"/> Floor standing	
	<input type="checkbox"/> Other:		
Operating mode(s) used	Mode 1		
Remark	---		

Reason for not performing the test	<input checked="" type="checkbox"/>	The amplitudes of the observed disturbances were all below the limit for continuous disturbance, these are not considered to be clicks.
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Measurement results	<input checked="" type="checkbox"/> Neutral	<input checked="" type="checkbox"/> Line 1	<input type="checkbox"/> Line 2	<input type="checkbox"/> Line 3
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Frequency (MHz)	First Measurement: Determination of the limit L _q – Quasi-peak							
	Limit L (dBμV)	Number of short clicks	Number of long clicks	Number of clicks – N ₁	Time of meas. (min.)	Click rate N	Increased limit (dB)	Increased Limit L _q
0,15	66	0	0	0	2			
0,5	56	0	0	0	2			
1,4	56	0	0	0	2			
30	60	0	0	0	2			

The calculated click rate N is not more than 5 times per minute and all the clicks are classified as short (t ≤ 10 ms). Thus, the EUT is deemed to comply with the limits without any further measurement at an increased limit.

Frequency (MHz)	Second measurement with Limit = L _q (Upper quartile method):			
	Limit L _q (dBμV)	Number of clicks – N ₂	Number of authorized clicks N ₂ ≤ N ₁ /4	Verdict
0,15				
0,5				
1,4				
30				

Supplementary information: ---

4.7 Harmonic current emissions	VERDICT: PASS
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Standard	EN 61000-3-2	
Exclusions (For these categories of equipment, limits are not specified in the EN 61000-3-2 standard)	<input type="checkbox"/>	Arc welding equipment intended for professional use.
	<input type="checkbox"/>	System(s) with nominal voltage(s) less than 220 V _{AC} (line-to-neutral).
	<input type="checkbox"/>	Equipment with rated power of ≤ 75 W (other than lighting equipment).
	<input type="checkbox"/>	Professional equipment with total rated power > 1 kW.
	<input type="checkbox"/>	Symmetrically controlled heating elements with a rated power ≥ 200 W.
	<input type="checkbox"/>	Independent dimmers for incandescent lamps with rated power ≤ 1 kW.

Classification		
<input type="checkbox"/>	Class A	All apparatus not classified as Class B, C or D
<input checked="" type="checkbox"/>	Class B	Portable tools
<input type="checkbox"/>	Class C	<input type="checkbox"/> Lighting equipment with active input power > 25 W
		<input type="checkbox"/> Lighting equipment with active input power ≤ 25 W (First requirement, Table 3 column 2)
		<input type="checkbox"/> Lighting equipment with active input power ≤ 25 W (Second requirement)
<input type="checkbox"/>	Class D	Personal computers, television receivers

Performed measurements

Port under test	AC mains power input					
Voltage – Mains [V]	230 Vac					
Frequency – Mains [Hz]	50 Hz					
Observation period	<input type="checkbox"/>	6.5 min.	<input checked="" type="checkbox"/>	2.5 min.	<input type="checkbox"/>	Other:
Version of measurement instrument standard used EN / IEC61000-4-7 (Cl. 7)	<input checked="" type="checkbox"/>	EN 61000-4-7:2002 + AM1:2009 (IEC 61000-4-7:2002+AM1:2008)				
	<input type="checkbox"/>	EN 61000-4-7:1991				
Control principle used in the EUT	<input checked="" type="checkbox"/>	Comply with the requirements of the Clause 6.1 (EN / IEC 61000-3-2).				
	<input type="checkbox"/>	Not comply with the requirements of the Clause 6.1 (EN / IEC 61000-3-2).				
Operating mode(s) used	Mode 1					
Remark						

Measurement data			Port under test			AC mains power input				
Operating mode / voltage / frequency used during the test						Mode 1/ 230 Vac/ 50 Hz				
WS620						220-240v model				
Urms = 230.1V Freq = 50.000 Range: 25 A Irms = 3.333A Ipk = 7.837A cf = 2.352 P = 520.3W S = 766.8VA pf = 0.678 THDi = 75.0 % THDu = 0.10 % Class A										
Test - Time : 5min (100 %)										
Test completed, Result: PASSED										
Order	Freq. [Hz]	Iavg [A]	Irms [A]	Irms% [%]	Irms%L [%]	I _{max} [A]	I _{max} % [%]	I _{max} %L [%]	Limit [A]	Status
1	50	2.6524	2.6627	79.899		2.6932	80.815			0.00
2	100	0.0360	0.0336	1.0073	3.1083	0.0412	1.2363	3.8147	1.0800	0.00
3	150	1.7593	1.7609	52.839	76.559	1.7731	53.205	77.090	2.3000	0.00
4	200	0.0265	0.0244	0.7326	5.6777	0.0320	0.9615	7.4520	0.4300	0.00
5	250	0.7975	0.7996	23.993	70.137	0.8026	24.084	70.405	1.1400	0.00
6	300	0.0226	0.0198	0.5952	6.6121	0.0305	0.9158	10.173	0.3000	0.00
7	350	0.3999	0.3998	11.996	51.920	0.4044	12.134	52.514	0.7700	0.00
8	400	0.0036	0.0137	0.4121	5.9708	0.0244	0.7326	10.615	0.2300	0.00
9	450	0.1748	0.1755	5.2656	43.869	0.1801	5.4029	45.013	0.4000	0.00
10	500	0.0000	0.0107	0.3205	5.8050	0.0168	0.5037	9.1221	0.1840	0.00
11	550	0.1249	0.1251	3.7546	37.916	0.1297	3.8919	39.303	0.3300	0.00
12	600	0.0000	0.0092	0.2747	5.9708	0.0122	0.3663	7.9611	0.1533	0.00
13	650	0.0726	0.0732	2.1978	34.877	0.0763	2.2894	36.330	0.2100	0.00
14	700	0.0000	0.0092	0.2747	6.9660	0.0107	0.3205	8.1270	0.1314	0.00
15	750	0.0819	0.0824	2.4725	54.932	0.0839	2.5183	55.949	0.1500	0.00
16	800	0.0000	0.0092	0.2747	7.9611	0.0107	0.3205	9.2880	0.1150	0.00
17	850	0.0657	0.0656	1.9689	49.574	0.0671	2.0147	50.727	0.1324	0.00
18	900	0.0000	0.0092	0.2747	8.9562	0.0107	0.3205	10.449	0.1022	0.00
19	950	0.0679	0.0687	2.0604	57.983	0.0702	2.1062	59.272	0.1184	0.00
20	1000	0.0000	0.0092	0.2747	9.9514	0.0107	0.3205	11.610	0.0920	0.00
21	1050	0.0544	0.0549	1.6484	51.270	0.0565	1.6941	52.694	0.1071	0.00
22	1100	0.0000	0.0076	0.2289	9.1221	0.0092	0.2747	10.947	0.0836	0.00
23	1150	0.0517	0.0519	1.5568	53.033	0.0534	1.6026	54.593	0.0978	0.00
24	1200	0.0000	0.0076	0.2289	9.9514	0.0092	0.2747	11.942	0.0767	0.00
25	1250	0.0385	0.0381	1.1447	42.386	0.0397	1.1905	44.081	0.0900	0.00
26	1300	0.0000	0.0076	0.2289	10.781	0.0076	0.2289	10.781	0.0708	0.00
27	1350	0.0371	0.0366	1.0989	43.945	0.0381	1.1447	45.776	0.0833	0.00
28	1400	0.0000	0.0061	0.1832	9.2880	0.0076	0.2289	11.610	0.0657	0.00
29	1450	0.0275	0.0275	0.8242	35.400	0.0290	0.8700	37.367	0.0776	0.00
30	1500	0.0000	0.0061	0.1832	9.9514	0.0076	0.2289	12.439	0.0613	0.00
31	1550	0.0272	0.0275	0.8242	37.842	0.0275	0.8242	37.842	0.0726	0.00
32	1600	0.0000	0.0061	0.1832	10.615	0.0076	0.2289	13.269	0.0575	0.00
33	1650	0.0209	0.0214	0.6410	31.331	0.0214	0.6410	31.331	0.0682	0.00
34	1700	0.0000	0.0061	0.1832	11.278	0.0076	0.2289	14.098	0.0541	0.00
35	1750	0.0213	0.0214	0.6410	33.230	0.0229	0.6868	35.604	0.0643	0.00
36	1800	0.0000	0.0046	0.1374	8.9562	0.0076	0.2289	14.927	0.0511	0.00
37	1850	0.0000	0.0168	0.5037	27.601	0.0183	0.5495	30.111	0.0608	0.00
38	1900	0.0000	0.0046	0.1374	9.4538	0.0076	0.2289	15.756	0.0484	0.00
39	1950	0.0056	0.0183	0.5495	31.738	0.0198	0.5952	34.383	0.0577	0.00
40	2000	0.0000	0.0046	0.1374	9.9514	0.0061	0.1832	13.269	0.0460	0.00
Remark										

Performed measurements

Port under test	AC mains power input					
Voltage – Mains [V]	230 Vac					
Frequency – Mains [Hz]	50 Hz					
Observation peroid	<input type="checkbox"/>	6.5 min.	<input checked="" type="checkbox"/>	2.5 min.	<input type="checkbox"/>	Other:
Version of measurement instrument standard used EN / IEC61000-4-7 (Cl. 7)	<input checked="" type="checkbox"/>	EN 61000-4-7:2002 + AM1:2009 (IEC 61000-4-7:2002+AM1:2008)				
	<input type="checkbox"/>	EN 61000-4-7:1991				
Control principle used in the EUT	<input checked="" type="checkbox"/>	Comply with the requirements of the Clause 6.1 (EN / IEC 61000-3-2).				
	<input type="checkbox"/>	Not comply with the requirements of the Clause 6.1 (EN / IEC 61000-3-2).				
Operating mode(s) used	Mode 1					
Remark						

Measurement data			Port under test			AC mains power input				
Operating mode / voltage / frequency used during the test						Mode 1/ 230 Vac/ 50 Hz				
DP100						220-240v model				
Urms = 230.1V Freq = 49.987 Range: 25 A Irms = 1.917A Ipk = 4.907A cf = 2.561 P = 239.9W S = 441.0VA pf = 0.544 THDi = 84.0 % THDu = 0.10 % Class A										
Test - Time : 5min (100 %)										
Test completed, Result: PASSED										
Order	Freq. [Hz]	Iavg [A]	Irms [A]	Irms% [%]	Irms%L [%]	I _{max} [A]	I _{max} % [%]	I _{max} %L [%]	Limit [A]	Status
1	50	1.4583	1.4603	76.194		1.4725	76.831			0.00
2	100	0.0151	0.0198	1.0350	1.8367	0.0214	1.1146	1.9780	1.0800	0.00
3	150	1.0619	1.0544	55.016	45.843	1.0742	56.051	46.705	2.3000	0.00
4	200	0.0123	0.0168	0.8758	3.9034	0.0183	0.9554	4.2583	0.4300	0.00
5	250	0.5450	0.5341	27.866	46.847	0.5615	29.299	49.256	1.1400	0.00
6	300	0.0061	0.0122	0.6369	4.0690	0.0137	0.7166	4.5776	0.3000	0.00
7	350	0.2556	0.2487	12.978	32.301	0.2640	13.774	34.283	0.7700	0.00
8	400	0.0029	0.0107	0.5573	4.6440	0.0137	0.7166	5.9708	0.2300	0.00
9	450	0.1480	0.1419	7.4045	35.477	0.1572	8.2006	39.291	0.4000	0.00
10	500	0.0000	0.0092	0.4777	4.9757	0.0092	0.4777	4.9757	0.1840	0.00
11	550	0.0549	0.0488	2.5478	14.796	0.0656	3.4236	19.883	0.3300	0.00
12	600	0.0000	0.0076	0.3981	4.9757	0.0107	0.5573	6.9660	0.1533	0.00
13	650	0.0627	0.0580	3.0255	27.611	0.0687	3.5828	32.697	0.2100	0.00
14	700	0.0001	0.0092	0.4777	6.9660	0.0107	0.5573	8.1270	0.1314	0.00
15	750	0.0499	0.0443	2.3089	29.500	0.0565	2.9459	37.638	0.1500	0.00
16	800	0.0009	0.0046	0.2389	3.9806	0.0122	0.6369	10.615	0.1150	0.00
17	850	0.0540	0.0519	2.7070	39.198	0.0565	2.9459	42.657	0.1324	0.00
18	900	0.0139	0.0168	0.8758	16.420	0.0183	0.9554	17.912	0.1022	0.00
19	950	0.0497	0.0458	2.3885	38.656	0.0549	2.8662	46.387	0.1184	0.00
20	1000	0.0138	0.0198	1.0350	21.561	0.0244	1.2739	26.537	0.0920	0.00
21	1050	0.0432	0.0427	2.2293	39.876	0.0443	2.3089	41.300	0.1071	0.00
22	1100	0.0042	0.0122	0.6369	14.595	0.0153	0.7962	18.244	0.0836	0.00
23	1150	0.0428	0.0412	2.1497	42.114	0.0458	2.3885	46.794	0.0978	0.00
24	1200	0.0000	0.0061	0.3185	7.9611	0.0076	0.3981	9.9514	0.0767	0.00
25	1250	0.0338	0.0320	1.6720	35.604	0.0381	1.9904	42.386	0.0900	0.00
26	1300	0.0000	0.0076	0.3981	10.781	0.0092	0.4777	12.937	0.0708	0.00
27	1350	0.0327	0.0320	1.6720	38.452	0.0351	1.8312	42.114	0.0833	0.00
28	1400	0.0000	0.0031	0.1592	4.6440	0.0061	0.3185	9.2880	0.0657	0.00
29	1450	0.0267	0.0244	1.2739	31.467	0.0305	1.5924	39.334	0.0776	0.00
30	1500	0.0000	0.0046	0.2389	7.4635	0.0061	0.3185	9.9514	0.0613	0.00
31	1550	0.0237	0.0229	1.1943	31.535	0.0259	1.3535	35.739	0.0726	0.00
32	1600	0.0000	0.0031	0.1592	5.3074	0.0061	0.3185	10.615	0.0575	0.00
33	1650	0.0211	0.0198	1.0350	29.093	0.0229	1.1943	33.569	0.0682	0.00
34	1700	0.0000	0.0031	0.1592	5.6391	0.0046	0.2389	8.4587	0.0541	0.00
35	1750	0.0177	0.0168	0.8758	26.109	0.0214	1.1146	33.230	0.0643	0.00
36	1800	0.0000	0.0031	0.1592	5.9708	0.0046	0.2389	8.9562	0.0511	0.00
37	1850	0.0180	0.0183	0.9554	30.111	0.0214	1.1146	35.129	0.0608	0.00
38	1900	0.0000	0.0031	0.1592	6.3025	0.0031	0.1592	6.3025	0.0484	0.00
39	1950	0.0143	0.0137	0.7166	23.804	0.0168	0.8758	29.093	0.0577	0.00
40	2000	0.0000	0.0031	0.1592	6.6343	0.0031	0.1592	6.6343	0.0460	0.00
Remark										

4.8 Voltage changes, voltage fluctuations and flicker	VERDICT: PASS
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Standard	EN 61000-3-3
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Limits

P _{ST} (Short term flicker)	<input type="checkbox"/>	≤ 1	<input checked="" type="checkbox"/>	Not Applicable
P _{LT} (Long term flicker)	<input type="checkbox"/>	≤ 0,65	<input checked="" type="checkbox"/>	Not Applicable
d _C (Relative Voltage change)	<input checked="" type="checkbox"/>	≤ 3,3%	<input type="checkbox"/>	Not Applicable
d _{MAX} (Max. voltage change)	<input type="checkbox"/>	≤ 4%	<input type="checkbox"/>	6%
	<input checked="" type="checkbox"/>	7%	<input type="checkbox"/>	Not Applicable
<u>Supplemental information:</u>				

Performed measurements

Reason for not performing the measurement(s)	<input type="checkbox"/>	Tests are not necessary because the EUT is unlikely to produce significant voltage fluctuations or flicker (clause 6.1).		
Port under test	AC Mains power input			
Voltage – Mains [V]	230 Vac			
Frequency – Mains [Hz]	50 Hz			
Test method	<input checked="" type="checkbox"/>	Flickermeter according EN / IEC 61000-4-15:2011		
	<input type="checkbox"/>	Simulation (Clause 4.2.3 of EN / IEC 61000-3-3)		
	<input type="checkbox"/>	Analytical method (Clause 4.2.4 of EN / IEC 61000-3-3)		
	<input type="checkbox"/>	Use of P _{st} = 1 curve (Clause 4.2.5 of EN / IEC 61000-3-3)		
Observation period	<input type="checkbox"/>	10 min.	<input type="checkbox"/>	120 min.
	<input type="checkbox"/>	Other:		
	<input checked="" type="checkbox"/>	24 times switching according to Annex B		
Operating mode(s) used	Mode 1			
Remark	---			

See next page.

Measurement data	Port under test	AC mains power input
Operating mode used during the test	Mode1/ 230 Vac/ 50 Hz	
WS620		
Relative voltage change characteristic dt	0,0	
Maximum voltage change d_{MAX}	1,35%	
Relative Voltage change d_C	1,05%	
Short term flicker P_{ST}	0,19	
Long term flicker P_{LT}	Not applicable	
DP100		
Relative voltage change characteristic dt	0,0	
Maximum voltage change d_{MAX}	0,87%	
Relative Voltage change d_C	0,72%	
Short term flicker P_{ST}	0,08	
Long term flicker P_{LT}	Not applicable	
Remark		

5 IMMUNITY TEST RESULTS

5.1 Performance (Compliance) criteria

[According to EN 55014-2 (CISPR 14-2)]

Performance criteria A : The apparatus shall continue to operate as intended during the test. No degradation of performance or loss of function is allowed below a performance level (or permissible loss of performance) specified by the manufacturer when the apparatus is used as intended. If the minimum performance level or the permissible performance loss is not specified by the manufacturer then either of these may be derived from the product description and documentation and from what the user may reasonably expect from the apparatus if used as intended.

Performance criteria B : The apparatus shall continue to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level (or permissible loss of performance) specified by the manufacturer when the apparatus is used as intended. During the test, degradation of performance is allowed however no change of actual operating state or stored data is allowed. If the minimum performance level or the permissible performance loss is not specified by the manufacturer then either of these may be derived from the product description and documentation and from what the user may reasonable expect from the apparatus if used as intended.

Performance criteria C : Temporary loss of function is allowed provided the function is self- recoverable or can be restored by the operation of the controls or by any operation specified in the instruction for use.

5.1.1 Performance criteria related to immunity tests

Immunity test	Performance criteria
Electrostatic discharge	B
Radio-frequency electromagnetic fields	A
Fast transients	B
Surge transient	B
Injected currents (radio-frequency common mode)	A
Voltage dips and short interruptions	C

5.1.2 Manufacturer defined performance criteria

Not provided.

5.2 Monitored – Checked Functions / Parameters

During the immunity tests the following functions of the EUT has/have been monitored/checked.

<input type="checkbox"/>	Motor speed	<input type="checkbox"/>	Display data
<input type="checkbox"/>	Switching	<input type="checkbox"/>	Data storage
<input type="checkbox"/>	Standby mode	<input type="checkbox"/>	Sensor functions
<input type="checkbox"/>	Temperature	<input type="checkbox"/>	Audible signals
<input type="checkbox"/>	Power consumption	<input type="checkbox"/>	Others : LED's
<input type="checkbox"/>	AC mains input current	<input type="checkbox"/>	Others :
<input type="checkbox"/>	Timing	<input type="checkbox"/>	Others :
<input type="checkbox"/>	Illumination	<input type="checkbox"/>	Others :
<u>Supplementary information :</u>			

Immunity test	Monitored - Checked function(s)/parameter(s) during / after the test	Method
Electrostatic discharge	N/A	---
Radio-frequency electromagnetic fields	N/A	---
Fast transients	N/A	---
Surge transient	N/A	---
Injected currents (radio-frequency common mode)	N/A	---
Voltage dips and short interruptions	N/A	---
<u>Supplementary information :</u>		

5.3 Electrostatic discharge immunity	VERDICT: N/A
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Electrostatic discharges (ESD) are the result of persons or objects that accumulate static electricity due to for instance walking on synthetic carpets. The ESD can influence the operation of equipment or damage its electronics, either by a direct discharge or indirectly by coupling or radiation. Both effects are simulated during the tests.

Requirements

Standard	EN 55014-2							
Basic standard	EN 61000-4-2							
Port under test	Enclosure							
Air discharges ¹⁾	<input checked="" type="checkbox"/>	±2 kV	<input checked="" type="checkbox"/>	±4 kV	<input checked="" type="checkbox"/>	±8 kV	<input type="checkbox"/>	kV
Contact discharges ¹⁾	<input type="checkbox"/>	±2 kV	<input checked="" type="checkbox"/>	±4 kV	<input type="checkbox"/>	±8 kV	<input type="checkbox"/>	kV
Number of discharges	≥ 10 per polarity with ≥ 1 sec interval.							
¹⁾ Tests with lower voltages are not required.								

Performed tests

Set-up	<input checked="" type="checkbox"/>	Table-top	<input type="checkbox"/>	Floor-standing
Ambient temperature [°C]	23 °C		Relative Humidity air [%]	46.1%
Voltage—Mains [V]	230 Vac			
Frequency—Mains [Hz]	50 Hz			
Operating mode(s) used	Mode 1			

	Test Point (Location of discharge, see also photo)	Test Voltage [kV] & Polarity	Coupling type	# of applied discharges / polarity	Discharge interval [s]
<input checked="" type="checkbox"/>	Points on conductive surface as indicated in the picture below.	±4	Contact	10	1
<input checked="" type="checkbox"/>	Points on non-conductive surface as indicated in the picture below.	±8	Air	10	1
<input checked="" type="checkbox"/>	HCP top side.	±4	Contact	10	1
<input checked="" type="checkbox"/>	HCP bottom side.	±4	Contact	10	1
<input checked="" type="checkbox"/>	VCP right side.	±4	Contact	10	1
<input checked="" type="checkbox"/>	VCP left side.	±4	Contact	10	1
<input checked="" type="checkbox"/>	VCP front side.	±4	Contact	10	1
<input checked="" type="checkbox"/>	VCP rear side.	±4	Contact	10	1
Observation(s)	During the test no loss of performance was observed. After the test the EUT functioned as intended. No unacceptable loss of performance or data was observed.				
Supplementary information:					

5.4	Radio-frequency electromagnetic fields immunity	VERDICT: N/A
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During the test it is verified if the equipment under test (EUT) has sufficient immunity against radiated electromagnetic fields. Industrial electromagnetic sources, walkie-talkies, radio transmitters, television transmitters and telecommunication equipment including cellular telephones and other emitting devices can generate these fields.

Requirements

Standard	EN 55014-2			
Basic standard	EN 61000-4-3			
Port under test	Enclosure			
Frequency range	Test level	Modulation	Dwell time	Step size
80 – 1000 MHz	3 V/m	80% AM (1kHz)	≥ 0,5 s	≤ 1%
<u>Supplementary information:</u>				

Performed tests

Test method	<input checked="" type="checkbox"/>	EN 61000-4-3	<input type="checkbox"/>	EN 61000-4-20		
Test set-up	<input checked="" type="checkbox"/>	Equipment on the table (0,8 m height)				
	<input type="checkbox"/>	Equipment standing on floor (0,05 – 0,15 m height)				
Voltage — Mains [V]	230 Vac					
Frequency — Mains [Hz]	50 Hz					
Operating mode(s) used	Mode 1					
Frequency range (applied)	Antenna Polarization	Test level (applied)	Modulation (applied)	Dwell time (applied)	Remark	
80 – 1000 MHz (step size 1%)	H	3 V/m	80% AM (1kHz)	3 s		
	V	3 V/m	80% AM (1kHz)	3 s		
Exposed side of the EUT	<input checked="" type="checkbox"/>	Front (0°)	<input checked="" type="checkbox"/>	Right (90°)	<input type="checkbox"/>	Top
	<input checked="" type="checkbox"/>	Rear (180°)	<input checked="" type="checkbox"/>	Left (270°)	<input type="checkbox"/>	Bottom
Observation(s)	During the test no loss of performance was observed. After the test the EUT functioned as intended. No unacceptable loss of performance was observed.					
<u>Supplementary information:</u>						

5.5	Electrical Fast Transients immunity	VERDICT: N/A
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The EFT immunity test simulates disturbances by bursts of very short transients caused for example by switching off loads such as an AC motor or bouncing relay contacts. The transients are likely to disturb electronics but less likely to cause damage.

Requirements

Standard	EN 55014-2			
Basic standard	EN 61000-4-4			
Pulse characteristics	5/50 ns			
Port		Test level	Repetition frequency	Duration
<input checked="" type="checkbox"/>	AC input-output power ¹⁾	± 1000 V	5 KHz	2 min. / polarity
<input type="checkbox"/>	DC input-output power ²⁾	± 500 V	5 KHz	2 min. / polarity
<input type="checkbox"/>	Signal and Control lines ³⁾	± 500 V	5 KHz	2 min. / polarity
¹⁾ For extra low voltage a.c ports, this testing is only applicable to ports interfacing with cables whose total length may exceed 3 m according to the manufacturer's functional specification. ²⁾ Not applicable to battery operated appliances that cannot be connected to the mains while in use. ³⁾ Applicable only to ports interfacing with cables whose total length may exceed 3 m according to the manufacturer's functional specification.				

Performed tests

Voltage — Mains [V]	230 Vac		
Frequency — Mains [Hz]	50 Hz		
Operating mode(s) used	Mode 1		
Test Set-up	<input checked="" type="checkbox"/>	Equipment standing on floor at (0,1 ± 0,01) m above ground plane	
	<input type="checkbox"/>	Equipment on the table (0,1 ± 0,01) m above ground plane	
	<input type="checkbox"/>	Artificial hand applied.	
Coupling	<input checked="" type="checkbox"/>	Common mode	<input type="checkbox"/> Other:

Port(s) under test	Test Voltage & Polarity	Repetition Frequency	Test duration /polarity	Injection method		
				<input checked="" type="checkbox"/> CDN	<input type="checkbox"/> Clamp	<input type="checkbox"/> Other
AC / DC mains power input	1 kV	5 KHz	2 min	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
AC / DC power output		5 KHz		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ethernet / LAN		5 KHz		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Observation(s)	During the test no loss of performance was observed. After the test the EUT functioned as intended. No unacceptable loss of performance was observed.					

5.6 Surge transient immunity	VERDICT: N/A
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The surge transient immunity test simulates the surges that are caused by over-voltages due to indirect (induced) lightning transients. The pulse is a slow transient with high-energy contents and due to its long duration may cause damage to an unprotected EUT.

Requirements

Standard	EN 55014-2		
Basic standard	EN 61000-4-5		
Pulse characteristics	1,2/50µs Voltage; 8/20µs Current		
Repetition rate	≥ 60 secs. (for each test level and phase angle)		
Number of pulses	5 pulses (at each polarity and phase angle)		
Port	Test level & Polarity & Coupling		Phase angle [°]
	Line to Line	Line to Earth	
AC input power ¹⁾	+ 1 kV	N/A	90
AC input power ¹⁾	- 1 kV	N/A	270
¹⁾ Tests with lower voltages are not required.			

Performed tests

Voltage — Mains [V]	230 Vac
Frequency — Mains [Hz]	50 Hz
Operating mode(s) used	Mode 1
Repetition rate	60 secs. (for each test level and phase angle)
Number of pulses	5 pulses (at each polarity and phase angle)

Port(s) under test	Coupling	Test level & Polarity	Phase angle [°]	Remark
<input checked="" type="checkbox"/> AC mains input power	Line to Neutral	+1 kV	90	
<input checked="" type="checkbox"/> AC mains input power	Line to Neutral	-1 kV	270	
<input type="checkbox"/> AC mains input power	Line to Earth	+2 kV	90	4
<input type="checkbox"/> AC mains input power	Line to Earth	-2 kV	270	4
<input type="checkbox"/> AC mains input power	Neutral to Earth	+2 kV	90	4
<input type="checkbox"/> AC mains input power	Neutral to Earth	-2 kV	270	4
Observation(s)	During the test no loss of performance was observed. After the test the EUT functioned as intended. No unacceptable loss of performance or data was observed.			
<u>Supplementary information:</u>				
1. The EUT does not include an earth port.				

5.7	Injected currents (RF common mode) immunity	VERDICT: N/A
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During this test the immunity of the equipment for induced or conducted electromagnetic fields is checked. Fields generated by radio and other transmitters cause RF voltages in long cables like the mains network. This test reproduces these induced disturbing voltages by injecting them to the EUT via the cabling.

Requirements

Standard		EN 55014-2		
Basic standard		EN 61000-4-6		
Frequency range		Modulation	Step size	Dwell time
<input type="checkbox"/>	0,15 – 80 MHz	80% AM (1kHz)	≤ 1%	≥ 0,5 s
<input checked="" type="checkbox"/>	0,15 – 230 MHz	80% AM (1kHz)	≤ 1%	≥ 0,5 s
Port			Test level, U ₀	
<input checked="" type="checkbox"/>	AC input-output power ¹⁾		3 V	
<input type="checkbox"/>	DC input-output power ^{2) 3)}		1 V	
<input type="checkbox"/>	Signal and Control lines ⁴⁾		1 V	
¹⁾ For extra low voltage a.c ports, this testing is only applicable to ports interfacing with cables whose total length may exceed 3 m according to the manufacturer's functional specification. ²⁾ Not applicable to battery operated appliances that cannot be connected to the mains while in use. ³⁾ Applicable to battery operated appliances that can be connected to the mains while in use, or to appliances for which the length of d.c. cables may exceed 3 m according to the manufacturer's functional specification. ⁴⁾ Applicable only to ports interfacing with cables whose total length may exceed 3 m according to the manufacturer's functional specification.				

Performed tests

Frequency range (applied)		Modulation (applied)		Step-size (applied)
<input type="checkbox"/>	0,15 – 80 MHz	<input checked="" type="checkbox"/>	0,15 – 230 MHz	80% AM (1kHz) 1%
Voltage – Mains [V]	230 Vac		Frequency – Mains [Hz]	50 Hz
Operating mode(s) used	Mode 1			
Test set-up	<input type="checkbox"/>	Equipment standing on floor at (0,1 ± 0,01) m above ground plane.		
	<input type="checkbox"/>	Equipment on the table (0,1 ± 0,01) m above ground plane.		
	<input checked="" type="checkbox"/>	Artificial hand applied.		

Port(s) under test	Test Level (applied)	Injection method	Dwell time (applied)	Remark
AC mains power input	3 V	CDN-M2	3 s	
Observation(s)	During the test no loss of performance was observed. After the test the EUT functioned as intended. No unacceptable loss of performance or data was observed.			
Supplementary information:				

5.8	Power supply interruptions and dips immunity	VERDICT: N/A
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The purpose of the test is to verify the immunity of the equipment against voltage dips and voltage interruptions. It helps to ensure that the equipment functions properly (as expected and safely) with power supply fluctuations. Voltage dips and interruptions are caused by faults in the LV, MV, HV networks (short-circuit or ground faults).

Requirements

Standard	EN 55014-2			
Basic standard	EN 61000-4-11			
# of dips & interruptions	3 dips / interruptions for each test level and phase angle			
Interval between events	≥ 10 seconds			
Port	Test level ¹⁾	Period (Cycles)		Performance Criteria
		50 Hz	60 Hz	
AC input power port	U _{NOM} – 100%	0,5	0,5	C; Refer to the chapter 5.1 for details.
AC input power port	U _{NOM} – 60%	10	12	C; Refer to the chapter 5.1 for details.
AC input power port	U _{NOM} – 30%	25	30	C; Refer to the chapter 5.1 for details.
¹⁾ Changes to the voltage level shall occur at a zero crossing point in the a.c. voltage waveform. NOTE: Where the equipment has a rated voltage range the following shall apply: <ul style="list-style-type: none"> - If the voltage range does not exceed 20% of the lower voltage specified for the rated voltage range. A single voltage within that range may be selected for testing. - In all other cases, the test procedure shall be applied for both the lowest and highest voltages declared in the voltage range. 				

Performed tests

U _{NOM} [V _{AC}]	Terminal	Voltage dip [% U _{NOM}]	Duration [cycles]		Repetition rate [s]	Number of dips per test	Phase angle [°]
			50 Hz	60 Hz			
230	L-N	0	0,5	/	10	3	0, 180
230	L-N	40	10	/	10	3	0, 180
230	L-N	70	25	/	10	3	0, 180
Operating mode(s) used		Mode 1					
Observation(s)		During the test no loss of performance was observed. After the test the EUT functioned as intended. No unacceptable loss of performance was observed.					
<u>Supplementary information:</u>							

6 IDENTIFICATION OF THE EQUIPMENT UNDER TEST

EUT PHOTOS



WS620



DP100

7 MEASUREMENT UNCERTAINTIES

The table(s) below show(s) measurement uncertainties of the EMC test set-ups. The reported expanded uncertainties are based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95%.

Conducted Emissions

The measurement uncertainty is evaluated as ± 2.26 dB.

Disturbance Power Emission

The measurement uncertainty is evaluated as ± 3.34 dB.

Harmonic Current Emission

The measurement uncertainty is evaluated as 0.1%.

Voltage Fluctuation and Flicker

The measurement uncertainty is evaluated as $\pm 4\%$.

8 USED EQUIPMENT

Conducted Emission / SR2-H

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
Test Receiver	R&S	ESCS 30	825442/014	2018/03/13	2019/03/12
Artificial Mains Network	R&S	ENV4200	848411/010	2018/01/22	2019/01/21
LISN	R&S	ENV216	100092	2018/07/23	2019/07/22
Coaxial Cable	Harbour	RG-400	SR2-H	2018/08/15	2019/08/14
Quietek EMI system	Quietek	Version 2.2	SR2-H	N/A	N/A

Disturbance Power Emission / SR2-H

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
Test Receiver	R&S	ESCS 30	825442/014	2018/03/13	2019/03/12
Absorbing Clamp	Luthi	MDS 21B	P1602169770	2018/02/05	2019/02/04
QuieTek EMI	Dekra	Version 2	SR2-H	N/A	N/A

Power Harmonics / SR3-H

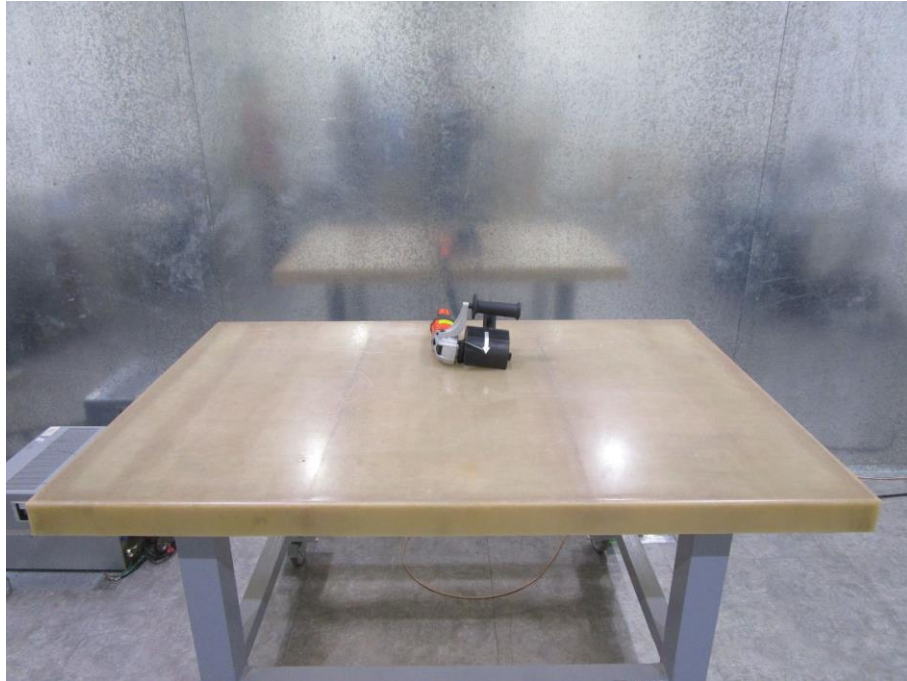
Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
EMC Emission Tester	EMC-Partner	HAR-1000-1P	109	2018/01/15	2019/01/14

Voltage Fluctuation and Flicker / SR3-H

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
EMC Emission Tester	EMC-Partner	HAR-1000-1P	109	2018/01/15	2019/01/14

9 TEST PHOTOS

Conducted disturbance voltage at mains terminals



Disturbance power



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